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PREDICTION OF CLINICAL SYMPTOMS AND PSYCHOLOGICAL FLEXIBILITY
USING A NOVEL VALUES CARD SORT ACTIVITY

by

Ryan S. Kimball

B.A., Utah State University, 2015

A Thesis
Submitted in Partial Fulfillment of the Requirements for the
Master of Arts Degree

Department of Psychology
in the Graduate School
Southern Illinois University Carbondale
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THESIS APPROVAL

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A Thesis Submitted in Partial
Fulfillment of the Requirements
for the Degree of
Master of Arts
in the field of Psychology

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AN ABSTRACT OF THE THESIS OF

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TITLE: PREDICTION OF CLINICAL SYMPTOMS AND PSYCHOLOGICAL FLEXIBILITY USING A NOVEL VALUES CARD SORT ACTIVITY

MAJOR PROFESSOR: Dr. Chad E. Drake

Values are directly relevant in a number of theoretical orientations in psychology, including Acceptance and Commitment Therapy (ACT). In ACT, clarification of one's personal values is paramount. The present study examined the ability to predict clinical symptoms and psychological flexibility using variables derived from one's performance on the ACT Values Card Sort (ACT-VCS), a novel values clarification exercise. The independent variables obtained from the ACT-VCS included 1) the number of values endorsed as very important in the initial sort (i.e., valuing propensity), 2) the number of values domains represented in the final sort (i.e., values diversity), and 3) the extent to which one's values were oriented toward uncontrollable experiences (i.e., control agenda endorsement). Three hierarchical regressions were conducted to examine the extent to which these three predictors accounted for the variance in scores of a) depression, anxiety, and stress, b) psychological flexibility, and c) psychological inflexibility. The model predicting psychological flexibility was significant ($\Delta R^2 = .25$, $F(3, 69) = 12.20$, $p < .001$) with valuing propensity ($r_{y_i, jk}^2 = .13$, $p < .001$) and control agenda endorsement ($r_{y_i, jk}^2 = .05$, $p < .01$), but not values diversity, independently accounting for a significant portion of the variance. Prior therapy experience moderated some of these relationships. These findings provide preliminary evidence for using performance variables from the ACT-VCS to predict clinical variables.

Keywords: values, Acceptance and Commitment Therapy, card sort, psychological flexibility.

DEDICATION

This document is dedicated, first and foremost, to my loving and compassionate wife, Laurie, who has urged me forward throughout this arduous process and is always more understanding and forgiving than I deserve. I also dedicate this work to my two boys – Simon and Milo. Many of my colleagues have asked me how I survive in graduate school with a family – especially kids. At times, I have asked them how they do it *without* a family or kids. Collectively and individually, my family is an enormous source of joy and strength in my life and certainly the focus of many of my own personal values.

I also thank the members of my committee for their feedback and guidance. That thanks extends especially to Chad who has patiently guided me through the challenges of academic writing. There is also much to be said of the countless mentors, supervisors, colleagues, and friends that have contributed to my spiritual, emotional, and behavioral development as a human being and as an aspiring psychologist.

Implicit in all these dedications is my thanks to God, to whom I ultimately owe all that I have, all that I am, and all I have done.

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CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

Motivation is a fundamental topic across a variety of subfields of psychology. Motivation among human beings is substantially more complicated than among animals, as humans may be driven by much more abstract desires than just thirst, hunger, or fear. Human motivation is often addressed in subfields of psychology via the construct of values. Personal values may generally be conceived of as a person's overall guiding principles in how they conduct themselves in pursuit of a meaningful life. This construct has been central to various perspectives and theories, including personality (e.g., Allport, 1961) existentialism (e.g., Yalom, 1980) and humanism (Sheldon, Kasser, Smith, & Share, 2002). It has also been a prominent consideration in specific approaches to therapy such as family therapy (Greco & Eifert, 2004), exposure and response prevention (Wilson & Murrell, 2004), Behavioral Activation (Jacobson, Martell, & Dimidjian, 2001), Cognitive Behavioral Therapy (CBT) (Vyskocilova, Prasko, Ociskova, Sedlackova, & Mozny, 2015), and Acceptance and Commitment Therapy (ACT) (Hayes, Strosahl, & Wilson, 2012). In spite of the prevalence of this construct in many areas of psychology, there is often a limited evidentiary basis for the conceptualization and application of values.

Empirical Approaches to Values

Some of the first elaborate and empirical investigations of personal values were conducted by Milton Rokeach. He defined values as “an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence” (Rokeach, 1973, p. 5). In other words, values are tied to beliefs, behaviors, and consequences which reflect an individual's unique choices and desires. He identified 18 terminal and 18 instrumental values that may be categorized into the four

general domains of pleasure, independence, honesty, and happiness (Rokeach, 1973). The terminal values are essentially desired end-states or products (e.g., inner harmony or family security), whereas the instrumental values are ways to conduct oneself (e.g., cheerfulness or ambition). Rokeach also arranged these values in a scale known as the Rokeach Values Survey (RVS; Rokeach, 1967). On the RVS, the respondent rank orders each of the values relative to one another according to their own personal preferences, with the terminal and instrumental values being independently evaluated. Rokeach (1973) asserted that his model of values was “reasonably comprehensive” (p. 27). This conclusion is supported by an independent analysis of the structure of these values resulting in very similar clustering (e.g., Feather & Peay, 1975). However, a later analysis suggested that all 36 values can be reduced to a two-scale solution of individualism and collectivism (Johnston, 1995). Other authors have been critical of Rokeach’s methods and the comprehensiveness of the values. For instance, one study found evidence that many of the 18 terminal values have multiple interpretations (Gibbins & Walker, 1993) and 83% of another sample believed there to be overlap amongst the items (Braithwaite & Law, 1985). Furthermore, some potentially important values such as physical health, dignity, privacy, or freedom have been omitted (Braithwaite & Law, 1985).

Although clinical applications of Rokeach’s values theories are limited, there have been some notable investigations. For instance, Rokeach himself applied his values theory to the psychotherapeutic process (Rokeach, 1975; Rokeach & Regan, 1980). Rokeach and Regan (1980) suggest that the clinician can use the RVS to inform discussions during sessions including the highlighting of discrepancies between one’s actions and stated values. Rokeach (1975) found that simply providing feedback to participants on how their values compare to reference groups can result in a change in values at a two-month follow-up. Additionally, the relationship between

Rokeach's values and clinical symptoms (e.g., depression) was found to be partially mediated by specific coping strategies in a sample of Russian and French individuals with asthma (Iosifyan, Arina, & Flahault, 2016). Furthermore, the RVS has been used in group therapy (Blackman, 1971) to inform discussions in later sessions (e.g., comparing one's own values to that of the group).

An alternative empirical approach to values that may be more concise, comprehensive, and universally relevant is that developed by Shalom Schwartz. According to Schwartz, values (1) are beliefs bearing an emotional valence, (2) guide the identification of actions and goals, (3) are transcendent of specific contexts, (4) serve as guiding standards, (5) have a hierarchical structure for the individual, and (6) shift their immediate importance according to their relation to other values and current contexts (Schwartz, 2012). A definition integrating several of these elements was provided by Schwartz (1994) describing values as “desirable transsituational goals, varying in importance that serve as guiding principles in the life of a person or other social entity” (p. 21). Schwartz's research has produced and confirmed a collection of 10 values, which are power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security (Schwartz & Boehnke, 2004; Schwartz, 2006). These 10 values may be further clustered along two mutually exclusive and opposite dimensions, which are self-enhancement versus self-transcendence and openness to change versus conservation.

Like Rokeach, Schwartz's theories on values included forms of measurement: the Schwartz Value Survey (SVS: Schwartz, 1992) and the Portrait Values Questionnaire (PVQ: Schwartz et al., 2001). The SVS is a 57-item self-report measure in which respondents indicate the degree to which they hold each item as a guiding principle, with each of the 57 items contributing to one of the 10 overarching values domains mentioned above. Schwartz et al.

(2001) reported that the PVQ was developed in response to a concern that the SVS content may be difficult to comprehend for some populations. Thus, the PVQ provides a description of various individuals (i.e., a verbal portrait) focusing on what that individual finds important or likes. The respondent is then instructed to indicate the degree to which they feel similar to that fictional character, as opposed to directly identifying values as important. One of the main strengths of Schwartz' findings is how these values domains were empirically supported across a variety of measure instruments and across many cultures and countries (Schwartz, 2012). His research also revealed that across culture, by and large, the values are endorsed in similar ways. For example, the most frequently endorsed values in most countries and cultures were benevolence, universalism, and self-direction (Schwartz, 2006). The least endorsed values were power, tradition, and stimulation (Schwartz, 2006).

Some studies have examined the relationship between psychopathology and the Schwartz values. Some examples include the finding that values most closely associated with psychopathology (e.g., depression, anxiety, stress, and schizotypy) include tradition (Akram & Khan, 2015; Hanel & Wolfradt, 2016) and hedonism (Hanel & Wolfradt, 2016). Furthermore, Akram and Khan (2015) point out that those who endorsed "Benevolence, Universalism and Security values...were less vulnerable towards psychopathology" (p. 6).

Some forays into values from a behavioral perspective may have more relevance to a clinical context of values (Bonow & Follette, 2009). The classic principles of reinforcement, motivation, and establishing operations, which were present in some of the earliest discussions in behaviorism (e.g., Skinner, 1953), have direct relevance to values. Reinforcement occurs when the consequences of an action results in increases in that future behavior. For instance, engaging in valued actions could result in internal and/or external positive reinforcement such as praise,

desired outcomes, and desired internal states. The related concept of establishing operations accounts for the effectiveness of reinforcers based on the current context of the organism (e.g., environment, levels of deprivation, and learning history). For example, if an organism has been deprived of water for a period, water will carry much more weight as a reinforcer than it would in an instance when that organism is satiated – and motivation to obtain the water will be higher. However, as Plumb et al. (2009) point out, those earlier accounts fail to differentiate between human and non-human motivation.

Relational Frame Theory (RFT) is a behavioral theory (Hayes, Barnes-Holmes, & Roche, 2001) which asserts that humankind's unique capacity for complex language is a large part of what makes this difference between human and non-human values. Further, it asserts that verbal repertoires modify and expand on the concept of establishing operations. Essentially, these verbal constructs of values serve as establishing operations to make that valued behavior more reinforcing than alternative behaviors. RFT is the empirical and theoretical basis of Acceptance and Commitment Therapy (ACT), an approach which directly invokes the use of values in a therapeutic context.

Acceptance and Commitment Therapy (ACT)

ACT is a relatively recent addition to the world of cognitive behavioral therapies. Some have argued that ACT presents a unified (Hayes, Pistorello, & Levin, 2012) and transdiagnostic (Levin et al., 2014) approach to behavior change and psychotherapy. ACT is less focused on symptom reduction (Gloster, Klotzsch, Chaker, Hummel, & Hoyer, 2011; Katz, Catane, & Yovel, 2016) and more oriented to increasing psychological flexibility. One popular model in organizing the component skills of psychological flexibility is known as the Hexaflex (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). This model depicts six core processes of psychological

flexibility in a way that demonstrates their interdependence and interconnectedness (See Figure 1). Four of the six processes (i.e., contact with the present moment, acceptance, defusion, and self-as context) have been conceived as subcomponents of mindfulness. Values and committed action are oriented toward motivation and behavior change.

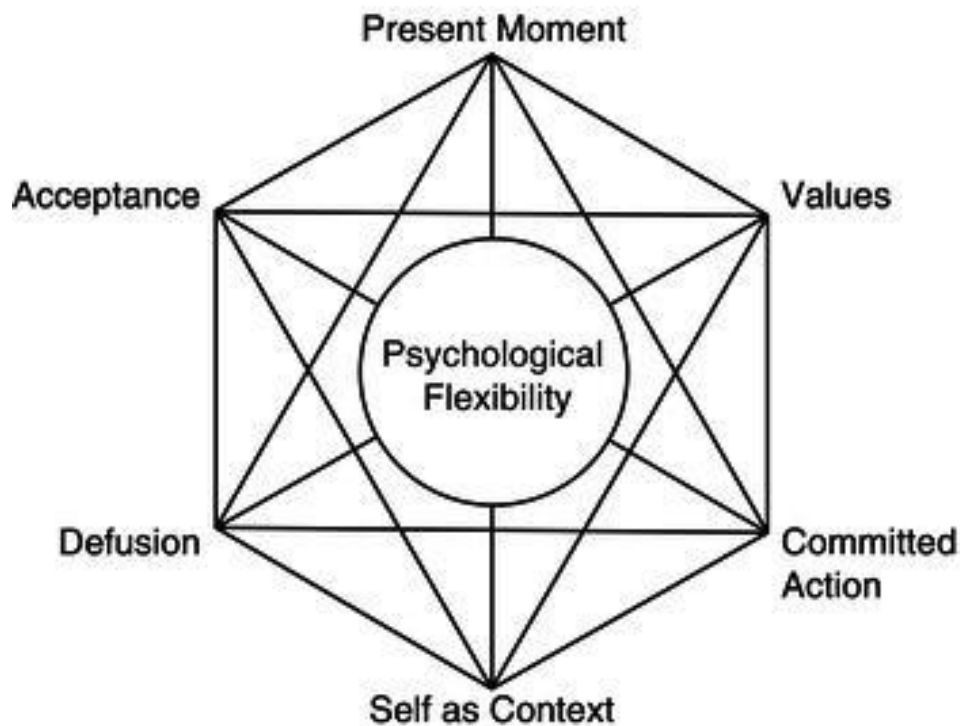


Figure 1. The Hexaflex (Hayes et al., 2006).

Evidence suggests that interventions focused on each of the six processes that comprise psychological flexibility produce significant and positive effect sizes for producing targeted outcomes (g ranging from .41 to .81), especially when there is an experiential component involved ($g = .39$) as opposed to merely didactic ($g = .01$) (Levin, Hildebrandt, Lillis, & Hayes, 2012). Indeed, preliminary analog studies of ACT components suggest that values work, when combined with work in other ACT components, is more effective than values alone in increasing

pain tolerance (Branstetter-Rost, Cushing, & Douleh, 2009; Páez-Blarrina et al., 2008; Plumb et al., 2009) and task persistence (Gutiérrez, Luciano, Rodríguez, & Fink, 2004). These may be evidence that components of ACT are not intended to be divided and that they have a cumulative effect. Indeed, one study (Glick, Millstein, & Orsillo, 2014) demonstrated that procrastination, though highly predicted by anxiety, can also be predicted by a combination of mindfulness, values, and acceptance, above and beyond the predictive effect of the anxiety alone.

Values in ACT

Values from an ACT and RFT perspective has been defined by Wilson and Dufrene (2009) as “freely chosen, verbally constructed consequences of ongoing, dynamic, evolving patterns of activity, which establish predominant reinforcers for that activity that are intrinsic in engagement in the valued behavioral pattern itself” (p. 64). Essentially, this means that values are cognitive specifiers of behaviors that are reinforcing in and of themselves when they occur. The definition also indicates that values are not dictated by coercion or aversive control (i.e., *freely chosen*).

Values in ACT work is particularly important to emphasize because “acceptance, defusion, being present, and so on are not ends in themselves; rather they clear the path for a more vital, values consistent life” (Hayes et al., 2006, p. 8). Thus, it is helpful to describe how each of these six processes relates to pursuing this *values consistent life*. Being present relates to values because it is often unhelpful to be worried about something from the past or anxious about some unknown future outcome when engaging in values. Instead, one strives to be more fully involved in that present moment of valued action. Using acceptance, one can persist in valued actions despite any discomfort that may be associated with that (e.g., the discomfort of holding a crying child when engaging in the value of being a caring parent). Defusion is a process wherein

private experiences (e.g., thoughts or emotions) ought not be seen as literal or fact, and that behaviors need not be dictated by such thoughts or emotions when they are not useful to pursuing valued ends. Thus, one may employ defusion when their responses to some private experiences seem to be interfering with their pursuit of valued action or a meaningful life. Self as context is helpful in separating the conceptualized self from the content of one's experience and pursuing valued directions despite the current circumstances or experiences. Finally, committed action is directly related to values in that it is the carrying out of behaviors consistent with those self-determined values.

Values interventions have produced evidence of efficacy and potency as an element of psychotherapy. For example, brief values interventions have generated a variety of desirable outcomes, including increased pain tolerance (Páez-Blarrina et al., 2008; Plumb et al., 2009), improved academic performance in undergraduates (Chase et al., 2013; Cohen, Garcia, Apfel, & Master, 2006), improved general health and functioning (McCracken & Yang, 2008), lower cortisol levels in response to stress (Creswell et al., 2005; Gregg, Namekata, Louie, & Chancellor-Freeland, 2014), and decreased defensiveness and increased feelings of love and connectedness (Crocker, Niiya, & Mischkowski, 2008). There is also evidence of a mediational effect of values in subjects with epilepsy as it pertains to their improvements in quality of life, wellbeing, and reducing the duration of seizures – even at a one-year follow-up interval (Lundgren, Dahl, & Hayes, 2008). Furthermore, engaging in valued activity was found to be correlated with lower distress in cancer patients (Ciarrochi, Fisher, & Lane, 2011) and predicted psychological well-being in undergraduate student samples (Elliot & Sheldon, 1998; Emmons & King, 1988).

Values work in general has been found to be associated with decreases in measures of psychopathology and symptoms in various clinical samples. For instance, in samples experiencing chronic pain, values were related to decreases in pain, pain related anxiety, and depression (McCracken & Vowles, 2008) as well as stress and exhaustion (McCracken & Yang, 2006). Another study replicated many of the same results, and also resulted in increased physical performance (Vowles & McCracken, 2008). Furthermore, discrepancies between one's actions and one's values is linked to greater levels of depression (Plumb & Hayes, 2008) whereas discrepancies between one's own values and the values of their culture predict estrangement, but not subjective wellbeing (Bernard, Gebauer, & Maio, 2006).

ACT consistent values measures. There are a variety of ACT consistent values measures. The Valuing Questionnaire (VQ: Smout, Davies, Burns, & Christie, 2014) is unique in that it measures progress and obstruction to valued living in general, although it does not assess for particular values. Another measure, the VLQ (Wilson, Sandoz, Kitchens, & Roberts, 2010), asks the client to indicate to what degree 10 different domains of life are important to the individual and the degree to which they have lived consistently with that value. These 10 domains are 1) family (other than parenting and intimate relations), 2) marriage/couples/intimate relations, 3) parenting, 4) friendship, 5) work, 6) education, 7) recreation, 8) spirituality, 9) citizenship, and 10) physical self-care. A second version of the VLQ was modified to include two other domains (i.e., environment and aesthetics) along with several additional dimensions on which to rate the 12 total domains (Wilson & Dufrene, 2009). Another measure, the Personal Values Questionnaire (PVQ: Ciarrochi, Blackledge, & Heaven, 2006), uses values domains that are closely aligned with those of the VLQ and VLQ-2, but also includes questions designed to distinguish from values-consistent motivations vs. those consistent with social expectations or

the avoidance of guilt or shame. The Survey of Guiding Principles (SGP: Ciarrochi & Bailey, 2009) ties more closely to those universal domains identified in previous research such as those of Schwartz (2006) as well as some components of the research of Rokeach. The values are measured along four dimensions: 1) importance, 2) pressure, 3) activity in that value, and 4) success. In summary, these measures examine values along a variety of domains and the degree to which an individual lives in accordance with those values.

The ACT View of Psychopathology

The typical problems involved in psychopathology are presumed to stem from psychological inflexibility according to ACT (Hayes et al., 2006). This is evident in clients who have a rigid and literal interpretation of their own experiences and feel a need to change them. In accordance with helping a client develop greater psychological flexibility, a vital component of ACT work with clients is the use of “creative hopelessness” (Hayes et al., 2012, p. 167). This is a process through which the clinician guides the client in exploring the effectiveness of their strategies to control their unwanted thoughts, emotions, and sensations. This can help highlight the futility of such a control agenda by helping the client see from their own experiences that thoughts, emotions, and sensations are not controllable in the same way that behaviors are. The word *control* here is not to be confused with the word *influence*. Though emotions, thoughts, and feelings can be influenced by what one chooses to think about and do, they are not in the same realm of control as other things (e.g., turning on and off a light). This is also not to be confused with deliberate thoughts. Some thoughts may be conceived as controllable (e.g., balancing a checkbook), but many are not.

Generating this creative hopelessness is an important part of promoting and generating willingness in the individual once they observe that those experiences are indeed uncontrollable.

Furthermore, the discussion arrives at the components of the client's experience which are more controllable – these are typically behaviors. Thus, one can still engage in valued behaviors successfully and not necessarily feel *good* or *better*. Such is the case with engaging in valued activities that are difficult, such as regularly waking up at five o'clock in the morning to increase productivity or holding a crying child. From an ACT perspective, control is not only ineffective with private experiences, but contributes to the problem of psychological suffering due to the futile struggle it can foster (Harris, 2006). This is supported by studies demonstrating the paradoxical effect of thought suppression increasing distress and failing to decrease thought frequency, as well as the comparatively greater utility of acceptance in reducing distress (Marcks & Woods, 2005).

The control agenda is also relevant to the client's values. As Dahl (2015) points out, "ACT aims to help clients to identify values which transcend concrete goals and may also begin to discriminate among aversive control, social compliance and appetitive control when it comes to values-relevant behavior" (p. 44). The aversive control and social compliance mentioned here are related to ideas discussed elsewhere in ACT literature. For example, the Personal Values Questionnaire (Ciarrochi & Blackledge, 2006) has a scale to assess the *purity* of a value, which is the degree to which it is freely chosen. In other words, a pure value is one which the individual does not feel compelled or pressured to select due to societal norms or expectations. Ciarrochi et al. (2011) further explored the importance of the purity question in relation to psychopathology. They concluded that "the most reliable relationships involved introjected motives (doing something out of guilt or shame). Introjected motivation correlated with poorer well-being, higher avoidant coping, and greater experience of distress" (p. 1189). Sometimes, the values that a client reports are used as ways to escape or avoid. Indeed, avoidance-focused values appear to

lead to poorer psychological health (Hildebrandt et al., 2008) and increased depression (Plumb & Hayes, 2008). This is further supported in Ciarrochi and Bailey's (2009) findings that two of the top 10 important values were control focused (e.g., *feeling good about myself* and *experiencing positive mood states*). Furthermore, three of the bottom 13 values in terms of success rate were control oriented: the previous two mentioned above and *living a stress-free life*.

Values Interventions

The purpose of values interventions is often to clarify the individual's values and attempt to identify the degree to which the values and corresponding behavioral patterns are genuinely freely chosen and inherently reinforcing. A meta analytic study by Levin et al. (2012) suggests that both single- and multi-component analog studies demonstrate medium to large effect sizes for a variety of outcomes when compared to inactive conditions, including values as a standalone treatment (Hedge's $g = .61$; $p < .05$). One intervention is the use of the ACT Matrix (Polk & Schoendorff, 2014). This is a therapy aid that can be used to foster psychological flexibility. The Matrix uses values to illustrate things which one generally wants to move toward and also uses various forms of suffering and efforts to control or eliminate the suffering as "away" moves. These are essentially those behaviors driven by the control agenda mentioned above. A helpful question often employed in ACT to illustrate the idea of away values is the dead man rule: a value should not be anything which a corpse could do better than you (e.g., get rid of depression, don't feel sad, or stop feeling anxious around others).

Another values clarification exercise is writing or journaling. This intervention has been shown to predict literary elements of positive emotion and insight in an anticipatory anxiety task (Katz, Czech, & Orsillo, 2014). However, this values writing intervention did not predict lower levels of anxiety in the task compared to a neutral writing condition (Katz et al., 2014). One

analog study found that a values writing exercise as an intervention was more emotionally evocative and meaningful when compared to other selection methods such as word selection, picture selection, or word generation (Sandoz & Hebert, 2015). However, the writing task may be limited in terms of providing a large variety of potential values given that there were five domains provided. Furthermore, a client may have trouble identifying what is important to them without exploring many options. Other ACT proponents have also discussed the utility of a values writing exercise (Wilson & Murrell, 2004), but indicate the potential for socially desirable responding. Thus, they argue for the writing to be integrated into an experiential exercise where the writing may be less face-valid.

Some of the interventions are even a hybrid of an intervention and a measure. Although they are primarily used as an intervention, they also offer data which can be collected and interpreted. Similarly, self-reports could conceivably be viewed as interventions if the content is elaborated on within a discussion between client and clinician. One example of such a hybrid is the Bulls-eye Values Survey (BEVS: Lundgren, Luoma, Dahl, Strosahl, & Melin, 2012). As Gregg et al. (2014) pointed out, the BEVS is useful as an intervention and a measure of current activity in those valued areas. While the BEVS is far from exhaustive in terms of utility as a values clarification exercise, it can be useful when assessing committed action in those valued areas. Furthermore, it can be used as a process measure or an intervention aid (Lundgren et al., 2012). The BEVS has four pre-determined domains, but the general format of the BEVS could be used with any number of personally relevant values in order to assess one's activity in specific areas and track their treatment progress in this way.

Values Card Sorts

Another activity that could potentially be conceived as a hybrid is that of the values card

sort. In a values card sort, clients review a wide variety of values from various domains, selecting only those which are most important to them. Thus, card sorts are hybrids in that they can serve as measures by abstracting certain performance variables (e.g., average importance of values domains and average levels of activity in those domains) or as interventions (e.g., using the activity as a values clarification exercise followed by therapeutic discussions related to individual insight). As Sheehan and Schmidt (2015) discussed, the card sort may avoid some issues of socially desirable responding by naming them in private. Another way to avoid socially desirable responding is to emphasize that they should select those which are most important for them personally (Meglino & Ravlin, 1998). While card sort stimuli typically consist of only words written on the cards, it has also been accompanied by visual stimuli (Hayes & Coyne, n.d.) which may be more emotionally evocative. However, it may be misleading given that visual stimuli could be more ambiguous than verbal stimuli.

While there are a variety of different card sorts which are utilized in clinical contexts, few of them have been empirically developed or examined. However, there are exceptions. One well known and extensively investigated values card sort is one developed by Miller et al. (Miller, C'de Baca, Matthews, & Wilbourne, 2001) in the field of motivational interviewing (Miller & Rollnick, 2013). This card sort has 83 values and has been used as a component in treatment protocols for substance abuse (Ewing, Filbey, Sabbineni, Chandler, & Hutchison, 2011; Graeber, Moyers, Griffith, Guajardo, & Tonigan, 2003; Magor-Blatch & Pitts, n.d.). One study found that the treatment effect was greatest for those who had not previously considered their smoking to be at conflict with personal values (Sanders, 2011). This card sort has also demonstrated an effect of increasing understanding of one's own values and increasing the likelihood to incorporate values into ethical decision making in a sample of accounting students (Sheehan & Schmidt, 2015).

Some card sorts are derived from existing values measures such as the aforementioned Survey of Guiding Principles (SGP: Ciarrochi & Bailey, 2009). The user manual for the SGP indicates that each of the 60 items can be printed onto individual cards to be sorted as an intervention instead of a measure. The SGP is unique in that it includes a factor related to the control agenda that the authors call experiential control. This factor consists of the following five items: 1) experiencing positive mood states, 2) Feeling good about myself, 3) Leading a stress-free life, 4) avoiding distress, and 5) avoiding self-doubt. This intervention has been used in a study which suggested that values work can be a protective factor against suicide in veteran populations (Bahraini et al., 2013).

The ACT Values Card Sort (ACT-VCS)

The ACT Values Card Sort (ACT-VCS) was developed within a clinical context as a component of an ACT protocol under development at Southern Illinois University (Chad E. Drake, personal communication, September 12, 2016). Six specific values were created for each of the 12 domains found in the VLQ-2 (Wilson & Dufrene, 2009). While the VLQ-2 domains appear to have been developed into a card sort by earlier researchers (Swayne, n.d.), the ACT-VCS is unique in that it 1) adds greater variety within each domain, 2) focuses on actions or qualities of behavior instead of abstract and overarching areas, and 3) adds two additional domains of interest: a values domain for personal character (general descriptors of behaviors that do not readily categorize into the existing domains) and a *non-values* domain describing efforts to control thoughts, emotions, and/or the behavior of other people. Thus, six specific valued actions were generated for each of the 12 VLQ-2 domains as well as six values under a more general values domain (see Appendix E for a complete list of content). Finally, 36 items were generated which were deemed to represent a control agenda relating to one's emotions and other

experiences. While the SGP implemented an experiential control factor, it was limited to five items. However, the control agenda could manifest itself in a variety of ways. By increasing the number of control agenda items, the ACT-VCS increases the variance and perhaps the likelihood of identifying those who may endorse the control agenda in a variety of ways. In all, the ACT-VCS consists of 114 cards.

When clients complete the ACT-VCS, they are instructed to quickly sort the cards into three piles: *not important to me*, *somewhat important to me*, and *very important to me*. The clinician may then have the client sort their *very important* values again, reserving those which are relatively most important for the *very important* pile. If this pile still contains more than 15 cards, the clinician might ask the client to complete another sort, retaining only 15 or less. Once a final collection of cards has been achieved, the client may be asked to evaluate each value's workability, or in other words, the degree to which the client is able to choose and to control the behaviors specified by each card, based on their own experience.

Variables of interest in a values card sort. When examining the process of completing the measure as opposed to just the content, there are a large number of variables one can consider. Those which have been here selected, though only a small sampling of what could be examined, are thought to address the question "Does it matter *how* one selects the cards?" This is done through identifying the client's propensity to endorse many values and many *types* of values. Since contextual behavioral science would argue against the idea that there is any *right* or *wrong* variety of values, the main target will be the process of selection as well as number of domains represented as opposed to particular domains. Additionally, the degree to which the control agenda is endorsed will also be considered as a contributing variable. Thus, three potential variables of interest from the ACT-VCS are *valuing propensity* (i.e., the degree to

which one values many things as very important), *values diversity* (i.e., the proportion of domains rated as very important), and *control agenda endorsement* (i.e., selecting unworkable, control-oriented values as very important).

Valuing propensity. It has been shown that college students often endorse many values as very important (Feather, 1988; Henderson-King & Smith, 2006; Ochberg, 1986; Schwartz & Bardi, 2001). One issue addressed in ACT is that it is believed that overall importance - herein referred to as *valuing propensity* - when either high or low may be indicative of problems (Wilson & Murrell, 2004). One study investigating the utility of values found that “successful enactment is associated with enhanced well-being, regardless of the number of values activated, [which] suggests that therapy focusing on the activation of a few, highly important values will be beneficial for most clients” (Williams, Ciarrochi, & Heaven, 2014, p.12). The respondent’s valuing propensity can be determined by the total number of values they rated during the initial sort as *very important*.

Values diversity. Values diversity refers to the number of domains represented in the final selection of values. One of the benefits of using the card sort in assessing values diversity is that it is possible for a client to eliminate a domain from having representation in the final card sort. In contrast, when rating each domain independently in the form of a measure, it is unlikely that someone will indicate that a domain has no importance at all. Indeed, one study (Hernandez, 2013) found that 78% of participants identified all nine domains of the PVQ (Ciarrochi & Blackledge, 2006) as important and less than 2% limited their important values domains to 4 or less. However, this method used a measure which evaluated each of the values independently. The sorting process requires that the respondent indicate those domains which are most important relative to one another as opposed to independent ratings. Thus, there could be greater

representation of a particular domain while other domains could be completely omitted following the final card sort, even if many of those domains were initially evaluated as at least somewhat important.

Control agenda endorsement. While the previous two process variables can be explored with most card sorts, very few card sorts make use of the control agenda (e.g., Ciarrochi & Bailey, 2009). Some suggest that avoidance-based values (i.e., those oriented with a control agenda) are associated with poorer psychological health and higher depression (Plumb et al., 2009). Therefore, the ACT-VCS, incorporates additional values that are generally considered unworkable, in that they involve control strategies focused on the management of thoughts, emotions, sensations, and other portions of experience that are not controllable (e.g., others' behavior). Control agenda endorsement can be determined by computing the percentage of their final values which belong to this control domain (e.g., three of the final 12 values were control-oriented, resulting in a control agenda endorsement score of .25). Additionally, participants are often asked to sort their final selection of values according to workability.

Present Study

This study will examine some of the relationships between variables derived from a computerized version of the ACT-VCS and measures of psychological distress and psychological flexibility. This will add to the existing knowledge related to the control agenda being implicated in human suffering within the context of a values intervention as well as the general utility of using the ACT-VCS as an instrument. To date, values card sorts have gained a fair amount of evidence as an intervention. However, very few of them assess for endorsement of the control agenda. Even those which make this effort (e.g., SGP: Ciarrochi & Bailey, 2009) are limited in the number of control-oriented values available (e.g., "it is important to me that I be in

control of my emotions”). In comparison, the ACT-VCS utilizes 36 such control-oriented values. This study will also explore process variables that can be noted from the completion of this activity in a therapeutic context such as how many items they endorse as *very important* during the initial sort (i.e., valuing propensity) or how varied the values are which are selected as most important (i.e., values diversity). This is distinct from previous studies which have typically looked at the treatment effect of the intervention or focused exclusively on the particular values selected. By investigating how these process variables relate to psychological flexibility and symptoms, this study may provide clinicians with a reason to expand their attention beyond the end result of the card sort to include the variables related to the *process* of completing the card sort. This study may also inform clinical work by describing the effects of endorsing the control agenda, which could potentially interfere or undermine the client’s efforts to achieve valued living. These predictors may also be useful in that they are not especially face-valid. Thus, they may be less susceptible to desirable responding. It is not likely that a client would select a diverse number of domains intentionally as they are intermixed and not explicitly classified. Similarly, valuing propensity is not likely to be an explicit goal of an individual. Additionally, the control agenda items are in many ways covert predictors, because the control agenda is not often viewed as inherently problematic. Thus, these types of values may be less susceptible to social desirability.

Hypotheses

The aim of the present study is to examine the utility of some potentially important variables from a values card sort in predicting levels of psychological distress and flexibility.

The hypotheses for the present study are as follows:

1. ACT-VCS variables (valuing propensity, values diversity, and control agenda endorsement) will predict clinical symptoms as measured by the sum score from the Depression, Anxiety, and Stress Scales (DASS).
2. ACT-VCS variables (valuing propensity, values diversity, and control agenda endorsement) will predict psychological flexibility, as measured by the average score from the six psychological flexibility subscales of the Multidimensional Psychological Flexibility Inventory (MPFI).
3. ACT-VCS variables (valuing propensity, values diversity, and control agenda endorsement) will predict psychological inflexibility, as measured by the average score from the six psychological inflexibility subscales of the MPFI.

CHAPTER 2

METHODS

Participants

The subject pool consisted of individuals registered with Amazon's Mechanical Turk (M-Turk) service. This is an internet-based, crowdsourcing marketplace where businesses and individuals (called *requesters*) can submit a Human Intelligence Task (HIT) to be completed by users of the service (called *workers*). The subject pool was further limited to M-Turk workers who have earned at least a 95% approval rating (to ensure quality data) and who have completed at least 100 HITs (to prevent users from creating new accounts to take the survey multiple times). Additional inclusion criteria included being older than 17, having a United States origin, and being a native English speaker. M-Turk has been found to provide more diverse samples as compared to a higher-education institution (Buhrmester, Kwang, & Gosling, 2011; Casler, Bickel, & Hackett, 2013). Participants recruited through M-Turk also typically provide valid and reliable data (Buhrmester et al., 2011; Casler et al., 2013).

Protection of Human Subjects

The ACT-VCS and other measures used in the present study asked about personal experiences and symptoms. Thus, risk of harm was minimal. There was some risk of general distress as the client completed questions related to symptoms they had experienced recently. The subjects were informed of these minimal risks and the nature of the study so that they could participate voluntarily (see Appendix A). The data file containing participants' responses never contained identifying information. However, to facilitate payment, participants were assigned a random number on the Qualtrics account which they then entered on the M-Turk page. Therefore, the only way to link an individual to their responses was with access to both

password-protected accounts (M-Turk and Qualtrics), which were only accessible to the principle investigator. The data files permitting such identification have been deleted.

Measures and Materials

ACT Values Card Sort (ACT-VCS)

The ACT-VCS (see Appendix C) is a psychotherapeutic intervention that was developed by Dr. Chad E. Drake, of Southern Illinois University (SIU). The instrument was developed to be used with clientele at the SIU Clinical Center as an intervention for values clarification and/or exploration. This was the first attempt to employ it in an empirical procedure. Therefore, there is no normative or psychometric data available for this measure. The ACT-VCS consists of 114 values. The values cover a range of 14 domains, 12 of which were derived from the structure of an existing values-oriented measure, the Valued Living Questionnaire-2 (VLQ-2: Wilson & Dufrene, 2009), which are as follows: 1) Family (other than couples or parenting), 2) Marriage/Couples/ Intimate Relation, 3) Parenting, 4) Friends/Social Life, 5) Work, 6) Education/Training, 7) Recreation/Fun, 8) Spirituality, 9) Community Life, 10) Physical self-care (diet/exercise/sleep), 11) the environment (caring for the planet), and 12) Aesthetics (art, music, literature, beauty). Of the remaining two domains added, one is deemed to be a more general valuing domain. The 13 domains mentioned thus far each consist of six individual values. The final domain is termed the *control agenda* domain and consists of the remaining 36 values in the card sort. This concept stems from the aforementioned control agenda within contextual behavioral science and ACT (e.g., Hayes et al., 2012), which purports that much of human suffering stems from an effort to control thoughts, emotions, and other experiences not directly controllable.

To complete the card sort task, participants are typically instructed to briskly sort each of the cards into one of three piles according to their own opinions. In the case of the present study, no piles were used due to the electronic nature of the administration. Instead, each value was rated on the three-point Likert scale of *not at all important*, *somewhat important*, and *very important*. For subsequent sorts, the values previously rated as *not important* and *somewhat important* were then removed and the remaining cards were re-sorted to further refine the values. One participant did not rate any value as very important, thus, the values they identified as somewhat important were carried forward to the next sort. This procedure was repeated until the client narrowed their values down to 15 or less. Those remaining cards can then be arranged in a number of ways according to what is most relevant to the client. For instance, the client might then be instructed to sort these 15 cards (values) into workable (completely within their control) and unworkable piles. Another option is to rank order them in a variety of ways (e.g., level of activity, level of satisfaction, or degree of outside influence on selecting that value). To remain consistent with the typical administration, participants were asked to rank-order their final values according to importance and also indicate which of their values they felt were controllable.

The independent variables from the present study were extracted from the respondents' performance on the ACT-VCS. These variables are related to both the specific content selected as well as more performance-oriented variables, such as the number of values selected. The first variable was titled *valuing propensity*, which is how many values they rated as very important during the initial sort. The second variable was titled *values diversity*, which is how many of the 13 domains (excluding the control domain) were represented in the final values. The third variable was titled *control agenda endorsement*, which was the percentage of their final values which belonged to the control-oriented domain (i.e., domain 14 from the ACT-VCS).

Demographics

The following demographic variables were collected to assess the descriptive statistics of the sample: age, country of origin, native language, level of education, relationship status, political affiliation, race/ethnicity, religious affiliation, importance of religion/spirituality, gender identity, sexual identity, employment status, socioeconomic status (SES), and mental health history. Refer to Appendix B for additional information. Participants completed the first three demographic questions at the beginning of the survey to determine their eligibility, while the remaining demographic questions were answered at the conclusion of the survey.

Depression, Anxiety, and Stress Scales (DASS)

Participants completed the DASS (Lovibond & Lovibond, 1995), which is a 42-item, self-report measure of general psychological distress including symptoms of depression, anxiety, and stress (see Appendix D). It has demonstrated sufficient convergent validity as evidenced by the anxiety scale correlating at $r = .81$ with another prominent anxiety measure and the depression scale correlating at $r = .71$ with another prominent measure of depression. The three-scale structure was supported through factor analysis and the scales were observed to be adequately internally consistent (Cronbach's alpha ranging from $\alpha = .81$ to $\alpha = .91$). Participants rated their agreement to statements on a four-point scale from 0 (*Did not apply to me at all*) to 3 (*Applied to me very much, or most of the time*). A single global symptom score can be used, but for additional information and specificity, the three sub scores for each category of symptoms can also be used. To reduce the number of analyses and potential for a Type I error, the global score was used in the present study. Global scores on the DASS can range from 0-126 with higher scores representing greater severity and presence of overall symptoms. The scale as a whole had high internal consistency in the present sample ($\alpha = .97$). The individual subscales of

depression, anxiety, and stress also demonstrated high internal consistency ($\alpha = .95$, $\alpha = .92$, and $\alpha = .94$ respectively).

Multidimensional Psychological Flexibility Inventory (MPFI)

Participants also completed the MPFI (Rolffs, Rogge, & Wilson, 2016), a 60-item self-report measure that was recently developed using principles of item response theory to measure the 12 basic constructs relevant to psychological flexibility and inflexibility (Hayes et al., 2012). It is internally consistent across a range of demographic variables such as education, race, gender, and age with Cronbach's alphas ranging from $\alpha = .95$ to $\alpha = .96$. The measure contains 60 self-referential statements regarding psychological flexibility and inflexibility with a six-point Likert scale ranging from *Never true* to *Always true* (see Appendix E). The measure consists of 12 scales – one for each component of psychological flexibility and inflexibility. One can also summarize the scales with two global scores, one of which being the mean of all six psychological flexibility subscales and the other being the mean of all six psychological inflexibility subscales. Again, to reduce the number of analyses and potential for Type I error, the two global scores were used. Scores on these two global scales have a minimum of 1 and a maximum of 6 with higher scores indicating greater psychological flexibility and inflexibility respectively. With the present sample, the MPFI had evidence of high internal consistency as a whole ($\alpha = .94$) as well as within the two summary scales of psychological flexibility and inflexibility ($\alpha = .97$ and $\alpha = .96$, respectively).

Procedure

The study was conducted via computers with internet connections. Participants were recruited through the M-Turk crowd-sourcing platform. The study was posted to M-Turk where subjects searched available tasks to complete. Potential participants were provided with a brief

title and description of the study and could elect to proceed or not. Those who elected to proceed were instructed to click the hyperlink which redirected them to the survey administered through the Qualtrics platform.

Participants were first presented with an Informed Consent form (Appendix A) describing the procedures, restrictions, and conditions of the study. They were to enter the word *yes* at the bottom to indicate their consent and agreement to the terms, or the word *no* if they did not wish to participate. Entering anything other than *yes* directed them to the end of the survey without compensation and an explanation why (see Appendix F). Participants then completed the first three questions from the demographics form (Appendix B) to verify their eligibility to participate in the study. If they were determined ineligible at this point, they were directed to the end of the survey without compensation and were provided an explanation why (see Appendix F). Eligible participants then completed the ACT-VCS, DASS, and MPFI self-reports (Appendices C, D, and E, respectively), and the remainder of the demographic questionnaire (Appendix B). Whether they completed the ACT-VCS or self-reports first was randomized to examine if there was an order effect.

Items for the ACT-VCS were all randomized (see Figure 2) and selected content was carried forward to allow for multiple sorts according to the refining process of the card sort activity. The participants completed the sorting process up to three times until they had narrowed their selection to 15 or less values. Consistent with typical ACT-VCS procedures, participants were asked to 1) rank the final cards in order of importance and 2) to categorize each card as controllable or not controllable, based on their own experience.

While the items within the self-reports were not randomized, the order of the self-reports was randomized. Finally, participants answered the demographic questions (see Figure 2). Upon

completion of the survey, participants were provided with a unique code (see Appendix G) which they entered on the M-Turk page to verify completion of the survey and receive their monetary compensation of two dollars.

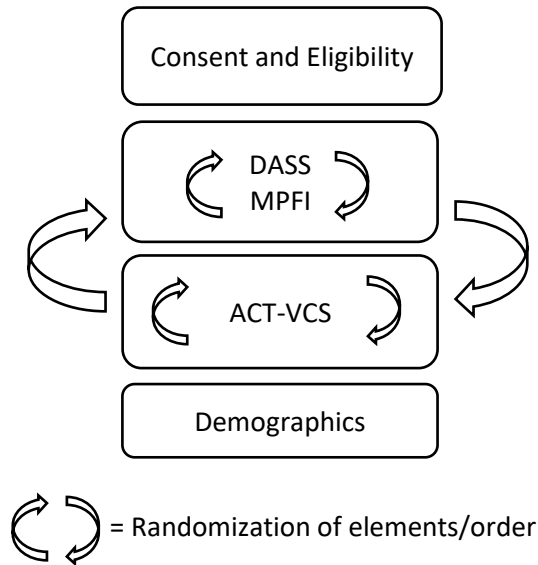


Figure 2. Study Procedure.

The following self-report measures were also administered to inform future studies, but were not incorporated into the hypotheses of the present study: Patient Health Questionnaire (Kroenke, Spitzer, & Williams, 2001), General Anxiety Disorder Scale (Spitzer, Kroenke, Williams, & Löwe, 2006), Acceptance and Action Questionnaire-II (Bond et al., 2011), Flourishing Scale (Diener et al., 2010), and World Health Organization Quality of Life – Short Version (The WHOQOL Group, 1998).

Data-Cleaning Procedures

To evaluate the participants’ attentiveness, there were a variety of items throughout the survey asking them to answer in specific ways (e.g., “This is a control question. Leave this question blank”). Failure to follow any one of these attention-check questions terminated their

response immediately without compensation and a message was displayed explaining why (see Appendix F). Subjects were notified of this condition in the informed consent, and this procedure was in accordance with current M-Turk Participation Agreement 3.b.vi. This states that “Requesters may reject Tasks you perform for good cause,” which could include inattentive work and resultant unusable data.

Statistical Analyses

The present correlational study employed a series of hierarchical regressions to investigate the relationships between the ACT-VCS variables previously identified (i.e., valuing propensity, values diversity, and control agenda endorsement) and psychological distress, psychological flexibility, and psychological inflexibility. This method of analysis is able to reveal the collective strength of the predictors, as well as their individual strength and unique contributions to the model (e.g., squared semi-partial correlation). Assessing those individual contributions was important for the present study given its exploratory nature in approaching various performance variables abstracted from the individuals’ performance in a psychotherapeutic intervention analogue (i.e., ACT-VCS).

Hypothesis 1

The values card sort variables will predict the level of clinical symptoms reported on the DASS. This was assessed via hierarchical regression using the three variables derived from the individual’s performance on the ACT-VCS (i.e., valuing propensity, values diversity, and control agenda endorsement) as the predictors. The dependent variable was the global total score reported on the DASS.

Hypothesis 2

The values card sort variables will predict the level of psychological flexibility as

measured by the MPFI. A hierarchical regression was conducted using the three ACT-VCS variables as predictors. The dependent variable was the psychological flexibility global scale from the MPFI, which was determined by calculating the mean of the scores from all six flexibility subscales.

Hypothesis 3

The values card sort variables will predict the level of psychological inflexibility as measured by the MPFI. A hierarchical regression was conducted using the three ACT-VCS variables as predictors. The dependent variable was the psychological inflexibility global scale from the MPFI, which was determined by calculating the mean of the scores from all six inflexibility subscales.

CHAPTER 3

RESULTS

Preliminary Analyses

All analyses were conducted using SPSS version 24. There were 133 participants in the sample, 55 of which were excluded from analyses (i.e., 41.4% attrition). Of those excluded, one participant did not give consent, one was excluded due to a completion time which was more than one standard deviation below the mean, and the remaining 53 had incomplete data due to their responses being terminated after failing an attention check question. Because most of the demographic questions were answered at the end of the study, two of these 53 participants completed only a portion of the final demographics. One of those participants self-identified as white, transgender, homosexual, Muslim, self-employed, separated (relationship status), moderate/centrist (political affiliation), middle-upper class (\$75,000 or more), and having an 8th grade or lower education; this is the same participant who was excluded for their short completion time. The other individual identified as Asian, Republican, in a serious relationship, and possessing an Associate Degree; this individual failed an attention check question during the demographics portion. Detailed demographic information (i.e., beyond age, country of origin, and native language, which were collected at the beginning of the study) was unavailable for the remaining 51 excluded participants, because they were excluded for failing an attention check item in other measures administered earlier in the study. An independent samples *t*-test revealed no difference in age between completers and non-completers. Furthermore, all excluded participants who reported their native language selected *English*; for country of origin, one excluded individual selected *India* while the remainder selected *United States*. Additionally, *t*-tests revealed no difference between completers and non-completers for any of the three

dependent or independent variables. After accounting for this attrition, there was an analyzed sample of 78 participants, 42 (i.e., 53.8%) of whom completed the ACT-VCS first. A MANOVA revealed that there were no order effects (ACT-VCS first vs. self-reports first) observed on the variables of interest (p values ranged from .23 to .86).

The analyzed sample consisted entirely of individuals who regarded the United States as their country of origin and who speak English as their native language. Additionally, the sample was primarily white (78%), heterosexual (90%), and full-time employed (60%). Other demographics, such as age, gender, and income, had a generally even distribution (see Table 1).

A series of MANOVAs were conducted to detect differences on the six dependent or independent variables according to the different levels of each demographic variable. Results indicated that the following demographic categories had significant differences between at least two of their levels on at least one of the six variables: employment status, individual importance of religion/spirituality, prior mental health treatment (i.e., psychotherapy or counseling), sexual orientation, and SES. As such, each of these five variables was included as covariates in the model by entering them in the first step of the regression.

Using Tukey's HSD method, post-hoc analyses were conducted to specify group differences. The homogenous subsets comparison method was used due to discrepant group sizes. In the case of employment status and sexual orientation, post-hoc analysis was not possible due to an n of 1 in one or more of the groups. Those individuals were excluded from their respective analysis in order to conduct the post-hoc comparison. Comparing groups according to employment status, those who indicated they were *unemployed but looking for work* reported significantly more psychological inflexibility than four of the six remaining levels of employment status – 1) *part-time employed*, 2) *homemaker*, 3) *student*, or 4) those who made

multiple selections. Unemployed participants also reported significantly higher levels of distress (i.e., DASS scores) than all other levels of employment status. For the religious/spiritual importance variable, those who indicated religion and spirituality is *very important* in their life reported significantly higher psychological flexibility compared to those who selected *unimportant* or *neutral*. This level of religious importance was also associated with significantly higher valuing propensity than those who selected *very unimportant* or *unimportant*. Additionally, those who reported a history of mental health treatment reported lower levels of psychological flexibility than those who indicated no prior therapy history. In the case of sexual orientation, those who reported being bisexual reported significantly higher psychological flexibility than those who identified as homosexual. In regards to SES, those in the lowest income bracket reported significantly lower psychological flexibility than those in the highest income bracket.

Test of Assumptions

The following assumptions regarding multiple regression were assessed for each of the three hypotheses: 1) a linear relationship between the predictors and dependent variables, 2) no multicollinearity among the predictors, 3) homoscedasticity, and 4) normal distribution of the residuals.

Assumption 1. Examination of the nine scatter plots did not indicate a curvilinear relationship. Indeed, curve estimations revealed that the inclusion of polynomials of the variables did not significantly improve the models in most cases. In some cases, the Mean Square Residual and *p* values reduced when including a polynomial in the model. However, the *p* value was often still outside the acceptable range in such instances. In other instances, when polynomial models were significant, the linear model was also significant and/or the *t*-tests on the standardized

Table 1

Demographic Composition of Analyzed Sample

Demographic Category	Level	%	Demographic Category	Level	%
Place of Birth	United States	100	Highest Education Attained	Some Grade School	1.3
Native Language	English	100		High school diploma/GED	7.7
Age (<i>M</i> =36.1)	19-29	30.8		Some college	25.6
	30-39	38.4		Trade/technical/vocational training	2.6
	40-49	14.1		Associate degree	11.5
	50-59	12.9		Bachelor's degree	41.0
	60-68	3.8		Master's degree	5.1
Gender	Agender	1.3		Professional degree	3.8
	Male	56.4		Doctorate degree	1.3
	Female	42.3	Employment Status ^a	Employed full-time	60.3
Race ^a	American Indian/Alaska Native	1.3		Employed part-time	20.5
	Asian	12.8		Homemaker	5.1
	Black or African American	11.5		Retired	1.3
	Hispanic or Latino	3.8		Self-employed	14.1
	White or Caucasian	78.2		Student	5.1
Sexual Orientation	Asexual	1.3		Unemployed but looking	3.8
	Bisexual	5.1	SES	\$25,000 or less	26.9
	Heterosexual	89.7		\$25,001-\$50,000	38.5
	Homosexual	3.8		\$50,001-\$75,000	23.1
Relationship Status	Civil union/domestic partnership	1.3		\$75,001 or more	11.5
	Committed relationship	19.2	Religious Affiliation	Agnostic	35.9
	Divorced	5.1		Atheist	9.0
	Married	34.6		Christian	43.6
	Separated	1.3		Jewish	2.6
	Single	37.2		Muslim	2.6
	Widowed	1.3		Spiritual	2.6
Political Affiliation	Democrat	47.4		None	2.6
	Independent	24.4		Other	1.3
	Moderate/Centrist	6.4	Importance of religion or spirituality	Very important	15.4
	Republican	19.2		Important	17.9
	Other	2.6		Neutral	20.5
History of psychotherapy or counseling	No	66.7		Unimportant	15.4
	Yes	33.3		Very unimportant	30.8

Note. ^a Participants were invited to select all that apply, resulting in a cumulative percent greater than 100.

coefficients were not significant in the polynomial model. Thus, the assumption of a linear relationship was met for all hypotheses.

Assumption 2. The assumption of no multicollinearity was met, as the highest correlation observed among the predictors was $r = .36$ (see Table 2). Diagnostics regarding multicollinearity also demonstrated values for Variance Inflation Factor (VIF) which were all significantly less than the conventional 10 (largest observed VIF = 1.27) and tolerance scores well above the conventional .2 (smallest observed tolerance = .79).

Assumption 3. Examination of the residual plots indicated that the variance of the error terms was generally consistent across all values for each of the dependent variables. Thus, homoscedasticity was assumed.

Assumption 4. The assumption that residuals are normally distributed was violated for two of the hypotheses as indicated by significant Shapiro-Wilkes tests for normality. Those variables were the overall DASS score ($p < .01$) and the MPFI-Psychological Inflexibility Summary Scale (MPFI-PI) ($p < .01$). Thus, transformations were conducted for these two variables. A square root transformation was used, consistent with Tabachnick and Fidell's (2007) recommendations for moderate positive skew. This resulted in a non-significant Shapiro-Wilkes test of normality on the residuals of the transformed DASS scores ($p = .48$). However, non-normal distribution was still indicated for the transformed MPFI-PI ($p < .01$). Thus, a Log(10) transformation was used for the original MPFI-PI scores, which resulted in a non-significant Shapiro Wilke's test ($p = .13$).

Primary Analyses

First, means and their standard deviations were calculated for each of the study variables. Second, in order to provide a basis for additional characterization of the variables, a series of

bivariate correlations were conducted to examine the relationships among independent and dependent variables (see Table 2). Significant correlations among the study variables ranged from medium to large. Some general trends worth noting included 1) a general decrease in valuing propensity and values diversity as control agenda endorsement increased, 2) generally disparate results when comparing psychological flexibility and inflexibility to one another in terms of their correlations with other variables, and 3) an increase in DASS scores as psychological flexibility decreased or as psychological inflexibility increased.

Table 2

Correlations Between Study Variables

Measure Name	1.	2.	3.	4.	5.	6.	7.	<i>M</i>	<i>SD</i>
1. Valuing Propensity	-							47.73	(26.00)
2. Values Diversity	.36**	-						4.96	(2.14)
3. Control Agenda Endorsement	-.23*	-.36**	-					.19	(.22)
4. DASS	-.11	-.03	.20	-				25.62	(24.10)
5. MPFI-PF	.57**	.29*	-.33**	-.31**	-			3.63	(.99)
6. MPFI-PI	-.07	-.01	.04	.78**	-.17	-		2.65	(.91)
7. Sqrt(DASS)	-.11	-.06	.15	.96**	-.37**	.75**	-	4.32	(2.65)
8. Log(MPFI-PI)	-.12	-.02	.03	.76**	-.21	.98**	.76**	.40	(.14)

Note. MPFI-PF = Multidimensional Psychological Flexibility Inventory – Mean of six flexibility subscales; MPFI-PI = Multidimensional Psychological Flexibility Inventory – Mean of six inflexibility scales. Means and Standard Deviations appear at the end of each row. * = $p < .05$, ** $p < .01$.

Hypothesis 1

A hierarchical multiple regression was conducted by first entering the five covariates mentioned above (i.e., employment status, individual importance of religion/spirituality, prior mental health treatment, sexual orientation, and SES) in Step 1 of the regression followed by the three predictors – valuing propensity, values diversity, and control agenda endorsement – in Step

2 (see Table 3). The dependent variable was DASS scores with a square root transformation. This analysis demonstrated that the three predictors were not significant in predicting symptoms in this sample, with the change in $R^2 = .04$ ($F(3, 69) = 1.07, p = .37$, Observed power = .28). Likewise, examination of the beta weights revealed that none of the predictors were individually significant. Nevertheless, *control agenda endorsement* had the strongest influence of the three predictors, as indicated by a squared semi-partial correlation coefficient of .03 which was marginally significant ($p = .08$).

Table 3

Summary of Hierarchical Regression Analysis for Variables Predicting DASS Scores

Variable	Step 1			Step 2			
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	$r_{yi,j}^2$
Employment	-0.29	0.12	-0.30*	-0.30	0.12	-0.27*	.07
Religious Importance	0.31	0.19	0.17	0.31	0.20	0.17	.03
Prior Treatment	-1.85	0.60	-0.33**	-2.03	0.61	-0.36**	.12
Sexual Identity	0.64	0.62	0.11	0.52	0.64	0.09	.01
SES	-0.61	0.30	-0.22*	-0.60	0.30	-0.22	.04
Valuing Propensity				0.00	0.01	-0.02	.00
Values Diversity				0.09	0.15	0.08	.00
Control Agenda Endorsement				2.39	1.35	0.20	.03
R^2	.21			.25			
<i>F</i> for change in R^2	3.90**			1.07			

Note: $r_{yi,j}^2$ = squared semi-partial correlation coefficient. * $p < .05$, ** $p < .01$.

Hypothesis 2

A hierarchical multiple regression was conducted by first entering the *five covariates* in Step 1 of the regression followed by the three predictors in Step 2 (see Table 4). The dependent

variable was the mean summary score for the six MPFI psychological flexibility subscales. This analysis revealed a good fit for the model as demonstrated by an overall change in $R^2 = .25$ ($F(3, 69) = 12.20, p < .001$; observed power = .99). Examination of the squared semi-partial correlations indicated that both valuing propensity and control agenda endorsement were significant predictors, uniquely accounting for 13% and 5% respectively of the variance in MPFI psychological flexibility scores. Values diversity did not make a significant contribution in predicting psychological flexibility.

Table 4

Summary of Hierarchical Regression Analysis for Variables Predicting MPFI Psychological Flexibility Scores

Variable	Step 1			Step 2			
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	$r_{yi,j}^2$
Employment	0.01	0.04	0.03	0.02	0.04	0.06	.00
Religious Importance	-0.21	0.07	-0.31**	-0.14	0.06	-0.20*	.04
Prior Treatment	0.57	0.21	0.27**	0.67	0.18	0.32***	.09
Sexual Identity	-0.47	0.22	-0.22*	-0.23	0.19	-0.11	.01
SES	0.25	0.10	0.24*	0.17	0.09	0.17	.03
Valuing Propensity				0.02	0.00	0.41***	.13
Values Diversity				0.00	0.04	0.01	.00
Control Agenda Endorsement				-1.08	0.40	-0.25**	.05
R^2	.29			.54			
<i>F</i> for change in R^2	5.95***			12.20***			

Note: $r_{yi,j}^2$ = squared semi-partial correlation coefficient. * $p < .05$, ** $p < .01$, *** $p < .001$.

Hypothesis 3

A hierarchical multiple regression was conducted by first entering the five covariates in

Step 1 of the regression followed by the three predictors in Step 2 (see Table 5). The dependent variable was the mean summary score for the six MPFI psychological inflexibility subscales.

This analysis revealed that the ACT-VCS variables were not predictive of psychological inflexibility scores as indicated by a change in $R^2 = .01$ ($F(3, 69) = .24, p = .87$; observed power = .10). Furthermore, examination of the squared semi-partial correlation coefficients confirmed that none of the variables independently accounted for a significant amount of variance in the psychological inflexibility scores.

Table 5

Summary of Hierarchical Regression Analysis for Variables Predicting MPFI Psychological Inflexibility Scores

Variable	Step 1			Step 2			
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	$r_{yi,j}^2$
Employment	-0.02	0.01	-0.29*	-0.02	0.01	-0.30**	.08
Religious Importance	0.02	0.01	0.24*	0.02	0.01	0.24*	.05
Prior Treatment	-0.06	0.03	-0.20	-0.06	0.03	-0.21	.04
Sexual Identity	0.06	0.03	0.20	0.06	0.04	0.20	.04
SES	-0.02	0.02	-0.10	-0.01	0.02	-0.10	.01
Valuing Propensity				0.00	0.00	-0.05	.00
Values Diversity				0.01	0.01	0.10	.01
Control Agenda Endorsement				0.03	0.07	0.05	.00
R^2	.20			.21			
<i>F</i> for change in R^2	3.67**			.24			

Note. $r_{yi,j}^2$ = squared semi-partial correlation coefficient. * $p < .05$. ** $p < .01$.

Secondary Analyses

Predicting the Subscales

Each of the primary analyses involved dependent variables that were calculated by combining subscales of these measures, and it is conceivable that subscales for these measures might differentially relate to the variables abstracted from the ACT-VCS. Bivariate correlations among the three DASS subscales, for example, revealed an average correlation of $r = .74$. Similarly, bivariate correlations among the six psychological flexibility subscales had an average of $r = .63$, while the six psychological inflexibility subscales had an average correlation of $r = .50$. Thus, the subscales appeared to be sufficiently disparate as to justify a set of exploratory analyses of these subscales.

A series of hierarchical multiple regressions was conducted on each of the subscales of the DASS and MPFI (see Table 6). For the sake of consistency, the same five covariates from the primary analyses were entered in Step 1, followed by the predictors in Step 2. Also, to remain consistent with the primary analyses, the same transformations were performed on each of the subscales as were performed on their respective overall scores (i.e., a square root transformation for each of the DASS subscales and a Log(10) transformation for each of the MPFI Psychological Inflexibility subscales). Results were consistent with those of the primary analyses, in that none of the models predicting DASS subscales or psychological inflexibility subscales from the MPFI were significant, while five of the six models for MPFI psychological flexibility subscales were significant, with the final one (*Defusion*) being marginally significant. Even after a conservative correction to account for family-wise error (i.e., Bonferroni's correction) by requiring a p value of .0028 (i.e., $.05/18$) or lower, those five significant models remained significant.

At the level of individual predictors, there were some additional findings as follows.

Valuing propensity independently correlated (in a positive direction) with five of the six subscales of psychological flexibility from the MPFI: *Acceptance*, *Present Moment Awareness*, *Self as Context*, *Values*, and *Committed Action*. Additionally, there was a marginally significant correlation with the *Defusion* subscale as well as a negative correlation with the *Lack of Contact with Values* subscale. Generally speaking, this means that as an individual endorsed more items as *very important* during the initial sort, they were more likely to report greater psychological

Table 6

Hierarchical Regression Results by Individual Subscale After Controlling for Covariates

Dependent Variable	All Predictors			Valuing Propensity		Values Diversity		Control Agenda Endorsement		<i>M</i>	<i>SD</i>
	ΔR^2	ΔF	<i>p</i>	β	$r_{yi,jk}^2$	β	$r_{yi,jk}^2$	β	$r_{yi,jk}^2$		
DASS-Depression	.04	1.21	.31	-.04	.00	.09	.01	.21 ^a	.04	9.04	(9.44)
DASS-Anxiety	.07	1.75	.17	-.02	.00	.15	.02	.27*	.06	5.78	(7.52)
DASS-Stress	.04	1.28	.29	-.01	.00	.12	.01	.22 ^a	.04	10.79	(9.53)
MPFI-PF-ACC	.18	5.58**	.00	.37**	.10	.09	.01	-.10	.01	3.10	(1.13)
MPFI-PF-PMA	.28	11.65***	.00	.41***	.13	.11	.01	-.21*	.04	3.74	(1.22)
MPFI-PF-SCX	.19	7.52***	.00	.38**	.11	-.11	.01	-.25*	.05	3.71	(1.21)
MPFI-PF-DEF	.07	2.53 ^a	.07	.21 ^a	.03	.07	.00	-.11	.01	3.37	(1.23)
MPFI-PF-VAL	.24	11.19***	.00	.38***	.11	.02	.00	-.27**	.06	3.86	(1.17)
MPFI-PF-COA	.15	6.38**	.00	.30**	.07	-.14	.02	-.29**	.07	3.97	(1.17)
MPFI-PI-EXA	.04	1.11	.35	.02	.00	.17	.02	-.06	.00	3.63	(1.14)
MPFI-PI-LPM	.01	.42	.74	-.04	.00	-.08	.00	.05	.00	2.41	(1.18)
MPFI-PI-SCN	.03	.85	.47	.12	.01	-.02	.00	.15	.02	2.48	(1.21)
MPFI-PI-FUS	.02	.60	.62	.00	.00	.13	.01	.12	.01	2.75	(1.29)
MPFI-PI-LCV	.05	1.33	.27	-.22 ^a	.04	.13	.01	-.08	.01	2.32	(1.15)
MPFI-PI-INA	.02	.58	.63	-.13	.01	.12	.01	.07	.00	2.29	(1.21)

Note. MPFI-PF-ACC = MPFI Acceptance subscale; MPFI-PF-PMA = MPFI Present Moment Awareness subscale; MPFI-PF-SCX = MPFI Self as Context subscale; MPFI-PF-DEF = MPFI Defusion subscale; MPFI-PF-VAL = MPFI Values subscale; MPFI-PF-COA = MPFI Committed Action subscale; MPFI-PI-EXA = MPFI Experiential Avoidance subscale; MPFI-PI-LPM = MPFI Lack of Contact with the Present Moment subscale; MPFI-PI-SCN = MPFI Self as Content subscale; MPFI-PI-FUS = MPFI Fusion subscale; MPFI-PI-LCV = MPFI Lack of Contact with Values subscale; MPFI-PI-INA = MPFI Inaction subscale; $r_{yi,jk}^2$ = squared semi-partial correlation after controlling for all other variables and covariates. Means (pre-transformation) and standard deviations were calculated and appear at the end of each row. ^a = $p < .10$, * = $p < .05$, ** $p < .01$, *** $p < .001$.

flexibility. Values diversity was not independently correlated with any of the 15 subscales. Control agenda endorsement was independently correlated with four psychological flexibility subscales: *Present Moment Awareness*, *Self as Context*, *Values*, and *Committed Action*. As would be theoretically expected, the coefficients indicated this was a negative relationship, suggesting that as the individual endorsed more control agenda items on the card sort, they reported less psychological flexibility. Additionally, control agenda endorsement was significantly correlated with the *Anxiety* subscale of the DASS and had a marginally significant correlation with the *Depression* and *Stress* subscales. This means that greater endorsement of the control agenda is related to higher levels of anxiety, and perhaps with depression and stress as well.

Past therapy effect. Because the ACT-VCS is a psychotherapeutic intervention and because clinical symptoms would conceivably differ between a general sample vs. a clinical sample, the sample was divided into two groups: those who had previously engaged in psychotherapy or counseling ($n = 26$) and those who denied any such history ($n = 52$). This variable was included as a dichotomous covariate in the primary analyses and was retained in the following analyses. In addition, its interactions with each of the predictors was included to examine its effect on the relationships between the independent and dependent variables. Consistent with earlier analyses, the same five covariates were entered in Step 1, including the grouping variable of *past therapy experience*, followed by the main effects of the predictors in Step 2, followed by the interaction effects between *past therapy experience* and each of the three ACT-VCS predictors (centered around their respective means) in Step 3. The results indicated that prior therapy experience did not moderate the relationship between valuing propensity or values diversity and any of the dependent variables (see Tables 7-9). However, a significant interaction between control agenda endorsement and prior therapy experience was observed with

respect to DASS scores (see Table 7 and Figure 3) and MPFI Psychological Inflexibility scores (see Table 9 and Figure 5).

Therapy experience revealed differences in DASS scores as a function of control agenda endorsement (see Figure 3). After accounting for the same covariates and other predictors from earlier analyses, those who reported no therapy experience reported increasing levels of symptoms as control agenda endorsement increased (change in $R^2 = .09$, $F(1, 44) = 5.39$, $p = .03$). In contrast, those with prior therapy experience demonstrated a negative relationship between symptoms and control agenda endorsement (change in $R^2 = .18$, $F(1, 18) = 5.51$, $p = .03$).

Those with prior therapy experience reported generally lower levels of psychological flexibility across all levels of control agenda endorsement (see Figure 4). This was also indicated in the MANOVAs conducted during the preliminary analyses. Therapy experience did not moderate the relationship between control and psychological flexibility (see Table 8). After including the demographic covariates, there was a marginally significant negative relationship between control and psychological flexibility for those with no prior therapy experience (change in $R^2 = .05$, $F(1, 44) = 4.01$, $p = .05$), and a non-significant relationship for those with prior therapy experience (change in $R^2 = .04$, $F(1, 18) = 2.21$, $p = .15$).

Therapy experience appears to have also moderated the relationship between control agenda endorsement and psychological inflexibility (see Table 9 and Figure 5). Controlling for the same demographic variables, the group with no prior therapy experience demonstrated a marginally significant increase of inflexibility as control increased (change in $R^2 = .07$, $F(1, 44) = 3.80$, $p = .06$). In contrast, those with prior therapy experience reported decreasing levels of psychological inflexibility as control increased (change in $R^2 = .18$, $F(1, 18) = 6.78$, $p = .02$).

Table 7

Hierarchical Regression for ACT-VCS Variables Predicting DASS Scores While Considering the Effect of Prior Therapy Experience

Variable	Step 1			Step 2			Step 3			$r_{yi,j}^2$
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	
Employment	-0.29	0.12	-0.30*	-0.30	0.12	-0.27*	-0.23	0.12	-0.21	.04
Religious Importance	0.31	0.19	0.17	0.31	0.20	0.17	0.45	0.20	0.25*	.05
Prior Treatment	-1.85	0.60	-0.33**	-2.03	0.61	-0.36**	-1.73	0.61	-0.31**	.08
Sexual Identity	0.64	0.62	0.11	0.52	0.64	0.09	0.92	0.69	0.16	.02
SES	-0.61	0.30	-0.22*	-0.60	0.30	-0.22	-0.70	0.30	-0.26*	.06
Valuing Propensity				0.00	0.01	-0.02	0.06	0.05	0.55	.01
Values Diversity				0.09	0.15	0.08	-0.66	0.59	-0.53	.01
Control Agenda Endorsement				2.39	1.35	0.20	-12.33	5.96	-1.04*	.04
Prior Treatment X Propensity Interaction							0.03	0.03	0.45	.01
Prior Treatment X Diversity Interaction							-0.40	0.33	-0.57	.02
Prior Treatment X Control Interaction							-8.40	3.34	-1.24*	.07
R^2	.21			.25			.32			
<i>F</i> for change in R^2	3.90**			1.07			2.15			

Note. $r_{yi,j}^2$ = squared semi-partial correlation coefficient. * $p < .05$. ** $p < .01$.

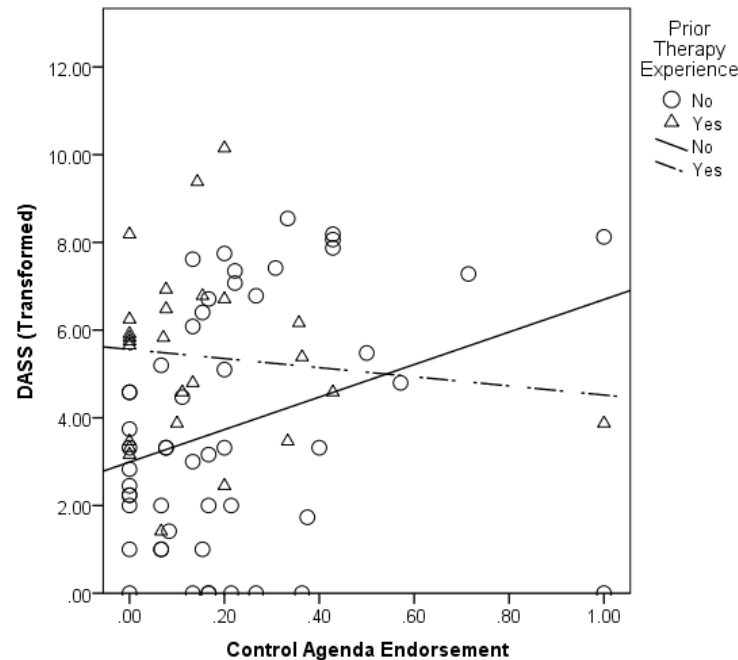


Figure 3. The Moderating Effect of Prior Treatment Experience on the Relationship Between Control Agenda Endorsement and DASS Scores.

Table 8

Hierarchical Regression for ACT-VCS Variables Predicting MPFI Psychological Flexibility Scores While Considering the Effect of Prior Therapy Experience

Variable	Step 1			Step 2			Step 3			$r_{yi,j}^2$
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	
Employment	0.01	0.04	0.03	0.02	0.04	0.06	0.03	0.04	0.07	.00
Religious Importance	-0.21	0.07	-0.31**	-0.14	0.06	-0.20*	-0.12	0.06	-0.17	.02
Prior Treatment	0.57	0.21	0.27**	0.67	0.18	0.32***	0.73	0.18	0.35***	.11
Sexual Identity	-0.47	0.22	-0.22*	-0.23	0.19	-0.11	-0.02	0.20	-0.01	.00
SES	0.25	0.10	0.24*	0.17	0.09	0.17	0.15	0.09	0.15	.02
Valuing Propensity				0.02	0.00	0.41***	0.04	0.02	1.16**	.05
Values Diversity				0.00	0.04	0.01	0.09	0.17	0.19	.00
Control Agenda Endorsement				-1.08	0.40	-0.25**	-2.84	1.74	-0.65	.02
Prior Treatment X Propensity Interaction							0.02	0.01	0.71	.02
Prior Treatment X Diversity Interaction							0.06	0.10	0.21	.00
Prior Treatment X Control Interaction							-0.91	0.98	-0.36	.01
R^2	.29			.54			.58			
<i>F</i> for change in R^2	5.95***			12.20***			2.11			

Note. $r_{yi,j}^2$ = squared semi-partial correlation coefficient. * $p < .05$. ** $p < .01$. *** $p < .001$.

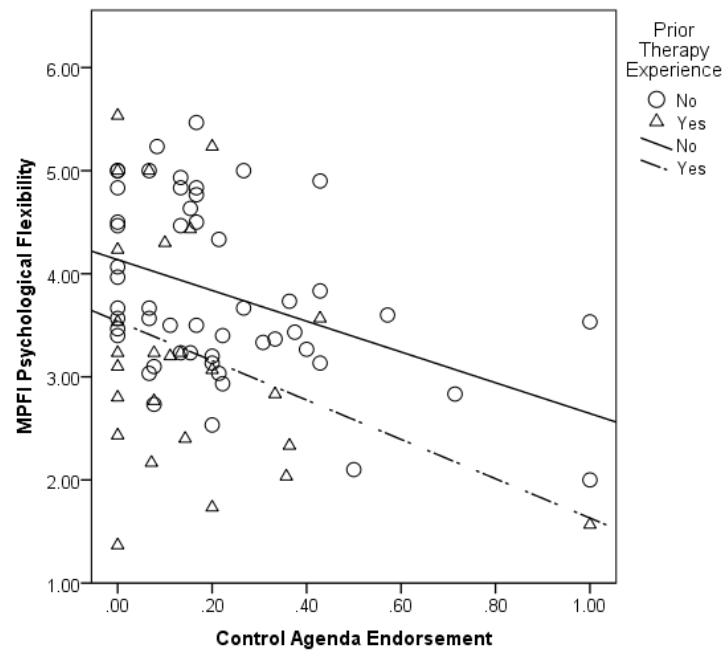


Figure 4. No Moderating Effect of Prior Treatment Experience on the Relationship Between Control Agenda Endorsement and MPFI Psychological Flexibility Scores.

Table 9

Hierarchical Regression for ACT-VCS Variables Predicting MPFI Psychological Inflexibility Scores While Considering the Effect of Prior Therapy Experience

Variable	Step 1			Step 2			Step 3			
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE</i>	β	r_{yij}^2
Employment	-0.02	0.01	-0.29*	-0.02	0.01	-0.30**	-0.01	0.01	-0.23*	.04
Religious Importance	0.02	0.01	0.24*	0.02	0.01	0.24*	0.03	0.01	0.32**	.09
Prior Treatment	-0.06	0.03	-0.20	-0.06	0.03	-0.21	-0.04	0.03	-0.14	.02
Sexual Identity	0.06	0.03	0.20	0.06	0.04	0.20	0.10	0.04	0.32**	.08
SES	-0.02	0.02	-0.10	-0.01	0.02	-0.10	-0.02	0.02	-0.15	.02
Valuing Propensity				0.00	0.00	-0.05	0.00	0.00	0.50	.01
Values Diversity				0.01	0.01	0.10	0.00	0.03	0.01	.00
Control Agenda Endorsement				0.03	0.07	0.05	-0.92	0.32	-1.45**	.09
Prior Treatment X Propensity Interaction							0.00	0.00	0.39	.01
Prior Treatment X Diversity Interaction							0.00	0.02	-0.02	.00
Prior Treatment X Control Interaction							-0.55	0.18	-1.52**	.10
R^2	.20			.21			.33			
<i>F</i> for change in R^2	3.67**			.24			3.95*			

Note. r_{yij}^2 = squared semi-partial correlation coefficient. * $p < .05$. ** $p < .01$.

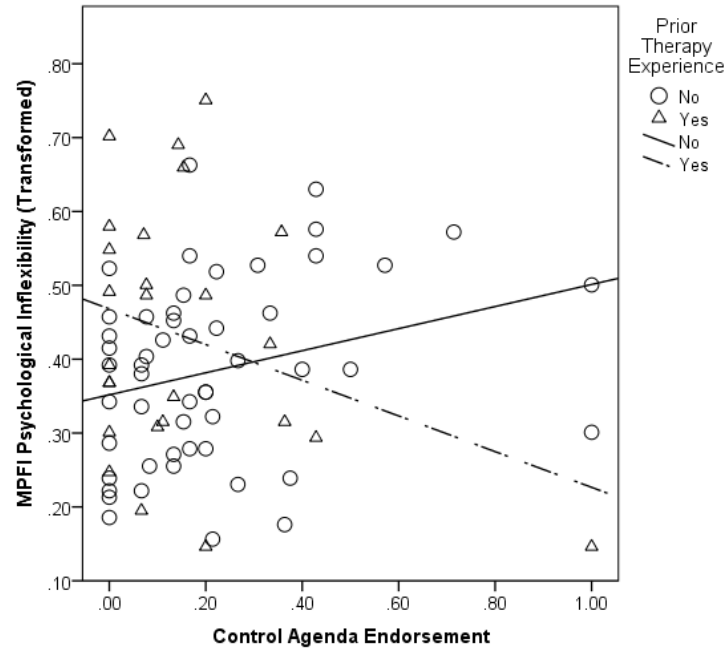


Figure 5. The Moderating Effect of Prior Treatment Experience on the Relationship Between Control Agenda Endorsement and MPFI Psychological Inflexibility Scores.

CHAPTER 4

DISCUSSION

Hypothesis 1

The first hypothesis asserted that there would be a linear relationship between the independent variables (valuing propensity, values diversity, and control agenda endorsement) and the overall score obtained from the DASS. Results from the hierarchical regression failed to support this hypothesis. None of the three predictors was independently correlated with general distress, nor were they collectively predictive of general distress. Furthermore, a secondary analysis dividing the DASS into its three subscales revealed that the ACT-VCS variables were not significant predictors collectively. However, control agenda endorsement was independently predictive of the Anxiety subscale from the DASS and demonstrated a marginally significant correlation with the Depression and Stress subscales. Thus, this study suggests that those who endorse control-oriented variables during the ACT-VCS are also likely to report increased anxiety, and possibly depression and stress as well.

A secondary analysis revealed a significant interaction between control agenda endorsement and prior therapy experience in predicting the overall DASS scores (see Table 7). Specifically, among those with no prior therapy experience, higher levels of endorsement of the control agenda were correlated with higher levels of symptoms reported on the DASS, a relationship that would be predicted by the psychological flexibility model. In contrast, among those reporting a history of psychotherapy, the relationship was reversed such that higher levels of control agenda endorsement were related to lower levels of symptoms. Such a relationship conflicts with the psychological flexibility model as well as a large body of research and is not as readily explained.

Hypothesis 2

The second hypothesis asserted that one's self-reported levels of psychological flexibility, as measured by six of the 12 subscales of the MPFI, would be predicted by the ACT-VCS variables. The findings from this study partially support this hypothesis. While the full regression model was significant, only valuing propensity and control agenda endorsement accounted for unique variance, with valuing propensity being a stronger predictor. Those who rated more values as *very important* during the initial sort, or who chose less control-oriented values, reported greater levels of psychological flexibility. The finding that an increased focus on control (i.e., control agenda endorsement) is associated with lower psychological flexibility is consistent with theoretical arguments against the utility of control in regards to private experiences (Dahl, 2015; Harris, 2006; Hayes, Strosahl, & Wilson, 2012). Values diversity, or the number of domains represented in the final selection of values cards, did not appear to substantially contribute to prediction of MPFI flexibility scores. Diversity was hypothesized to predict flexibility in part because a low level of diversity might be viewed as a narrowness in valuing that could be viewed as a type of inflexibility. However, one might also reason that by valuing too many domains, an individual could be "spread too thin" and may experience distress or dissatisfaction in efforts to sufficiently engage with all of their values. If so, then any relationship between the number of valued domains and psychological flexibility would probably not be linear and therefore not detectable with the current approach to analyses.

Secondary analyses revealed that across five of the six MPFI subscales of psychological flexibility (all except Defusion), valuing propensity was a significant predictor. With respect to control agenda endorsement, only the Present Moment Awareness, Self as Context, Values, and Committed Action subscales shared a significant amount of variance. Because the ACT-VCS is a

values-focused intervention, one would expect it to be correlated with Values and Committed Action. Interestingly, even some of the psychological flexibility domains which are not directly related to values were correlated with the predictors, particularly in the case of valuing propensity. This may suggest that as one employs less control strategies and especially as one increases the number of behaviors they value, they are more likely to engage in the private and public experiences of their lives (i.e., emotions, thoughts, behaviors, feelings) in a more flexible manner. This is consistent with statements in ACT literature that the other components of psychological flexibility are primarily useful for increasing an individual's engagement in a values-consistent life (e.g., Hayes et al., 2006).

Hypothesis 3

The third hypothesis predicted that psychological inflexibility, as measured by the six psychological inflexibility subscales of the MPFI, would be predicted by the three ACT-VCS variables of interest. The findings from the primary analyses of the present study failed to support this hypothesis; the ACT-VCS variables did not collectively nor individually predict psychological inflexibility. Results of secondary analyses revealed that this finding was maintained when assessing the six MPFI subscales of psychological inflexibility independently. From a theoretical perspective, the control agenda endorsement variable of the ACT-VCS seems to reflect inflexibility repertoires, especially perhaps experiential avoidance and fusion, so it is not entirely clear why this variable did not predict these particular subscales as well as general inflexibility. Nevertheless, secondary analyses revealed an interaction effect for prior therapy experience on the relationship between control agenda endorsement and psychological inflexibility, suggesting that the null finding from the primary analysis was due to an opposing relationship between these two groups. In other words, psychological inflexibility increased as

control agenda endorsement increased in those with no prior therapy experience (this finding was of marginal significance), whereas psychological flexibility *decreased* as control agenda endorsement increased in those with prior therapy experience. The reason for such a relationship is difficult to determine, given that this interaction was not observed for psychological flexibility. Nevertheless, it could be that those who have had experience with psychotherapy may perceive greater effectiveness in controlling their unpleasant thoughts and emotions.

Thus, those with prior therapy experience reported equivalent levels of psychological flexibility and decreased levels of inflexibility as control agenda endorsement increased. This may seem counterintuitive, but it provides evidence that the two constructs (psychological flexibility and inflexibility) may be distinct from one another and not merely mutually-exclusive opposites. This is also evidenced by the small and non-significant correlation ($r = -.17, p = .14$) between the scores for psychological flexibility and inflexibility on the MPFI. Furthermore, that these two constructs are separate and distinct is evidenced in the construction of the MPFI wherein they are measured independently of one another.

Secondary Analyses

Secondary analyses from the present study suggested that therapy experience may moderate the relationship between the control agenda endorsement and both general distress and psychological inflexibility. Specifically, among those with no prior therapy experience, a significant positive correlation was found between control agenda endorsement and general distress, and a marginally significant positive correlation was found between control and psychological inflexibility; both of these relationships cohere with the psychological flexibility model as well as prior research (e.g., Hildebrandt et al., 2008; Plumb & Hayes, 2008). In contrast, those with prior therapy experience exhibited negative correlations among these same

variables. A thorough and well-informed interpretation of this moderating relationship is not possible because we know very little about the respondents' experiences in therapy (e.g., treatment duration, time since termination, treatment outcomes, theoretical orientation of the therapist, or how engaged the client was in therapy). In any case, some of these results suggest that the relationship between the card sort variables and other clinical variables of interest may be a more dynamic relationship and may lend itself to more complex models. Further empirical inquiry regarding how psychotherapy experience may moderate these relationships may be worthwhile.

Limitations and Future Directions

This study examined the utility of the ACT-VCS as an assessment instrument, although it was designed to be a values clarification intervention and not necessarily a psychometrically sound assessment tool. Individual items of the ACT-VCS were deductively, but not empirically, derived from an extant measure – the VLQ-2. Thus, the actual content of the ACT-VCS could be refined using an empirical approach to values selection and elaboration. One area in which this could be especially useful is in validating the control agenda items to determine if they accurately represent the ACT conceptualization of unworkable strategies. For example, an exploratory or confirmatory factor analysis may help to refine the 36 items that make up the control agenda portion of the ACT-VCS, or to determine if they represent a similar domain (i.e., form a distinct factor). Notwithstanding the lack of empirical support for the ACT-VCS, the present study modeled a general approach toward abstracting variables from one's performance on a therapeutic task. Such an approach could be repeated with other exercises and interventions – including those that have been empirically developed or already have empirical support. While the present study selected three variables which can be derived from the performance of the card

sort, there are many other variables which could be obtained from the ACT-VCS, including time to complete the card sort, the number of times the cards must be sorted before being reduced to a sufficient number of cards, and the number of values (rather than values domains) in the final sort. All these ACT-VCS variables could be termed *process* variables. Although they are related to the content of the cards, many of them are more behaviorally (i.e., performance) based and may therefore be less susceptible to socially desirable responding than the face-valid content of the values cards.

The current work explored the utility of using this task to predict clinically relevant variables, rather than its typical use of clarifying a client's values. Future research could provide empirical support for the ACT-VCS by exploring the degree to which it might predict values clarity and committed action outside the context of the card sort activity itself. For example, one could qualitatively assess the impact of the ACT-VCS on variables one would expect to change (e.g., changes, clarifications, or insights regarding their personal values). Convergent validity could also be determined quantitatively by comparing their performance on the task with their responses on psychometrically sound instruments related to values. On the other hand, this may not be appropriate, given that this values clarification procedure is meant to rate values relative to one another (i.e., value X is more essential than value Y). In contrast, self-report measures often rate the values independent from one another. The relative comparison method may bear greater ecological validity given that one is bound by time and resources and cannot pursue all values simultaneously.

Another limitation of the present study is that the card sort is a vehicle for thinking and conversing about values in a clinical context and often after several sessions have already transpired, which may affect the client's perception and expectations for the task. Furthermore,

the therapist may clarify certain values or instructions, encourage the client to sort faster, pause to discuss thought processes and sorting strategies, or any other clinically relevant behavior that the therapist may observe and wish to explore. The participants in the present study were in no such context. Furthermore, the ACT-VCS in the present study was a computerized task rather than an interaction with the actual cards – a procedural difference that could conceivably generate outcome differences. Whether the computerization of the ACT-VCS is sufficiently similar to a live administration is an empirical question. Future research could compare the benefits of an in-person administration of the ACT-VCS to a computerized version, including a more causal effect of the ACT-VCS (e.g., comparing treatment outcomes).

Aspects of the sample also greatly limit the degree to which these results can be generalized. For instance, M-Turk workers are likely more proficient than the general public in completing computerized tasks. Thus, a change in recruitment method alone may yield different results. The sample was also limited to English speaking United States natives. Although this has the benefit of examining the ACT-VCS in a sample which is likely more similar to the context in which the intervention was developed, it would also be helpful to explore how using participants from other English speaking countries, or using translations of the ACT-VCS in other languages, may affect results.

Apart from varying the kinds of variables one examines, one could also vary the ways in which the client is instructed to complete the card sort. For example, if one were instructed at the beginning of the ACT-VCS to try to limit the number of values they place in the *very important* pile, this would likely affect valuing propensity and may even impact other variables of interest, such as sorting duration. Another example of altered instruction includes prompting the client to sort more quickly in order to get their initial impressions.

Another important aspect of the card sort which was not investigated in the present study is the workability question (i.e., how controllable do they perceive the values they selected to be?). One could investigate the overall endorsement of perceived controllability, or one could investigate whether correctly distinguishing controllable versus uncontrollable values is predictive of certain clinical variables of interest. This is related to an important assumption on which the card sort was developed: that some values are not ACT-consistent values, but rather behaviors which are deemed valuable to the individual in serving as a form of aversive control or experiential avoidance. While this could be a valid classification, it may be better informed by the individuals' motives for those behaviors. That is, does the individual engage in the behavior to escape something uncomfortable, or is it somehow inherently meaningful to them? The answer to this, in many cases, can only be determined by the individual and may not be observable or available to the clinician.

Many of the potential variables mentioned above, which are derived from one's performance on the card sort, are quantitative in nature. There are also potentially valuable qualitative observations that could be assessed such as how the task has changed a client's thoughts or feelings about their values in the moment or how they interpreted the values they chose. The workability question is another method to assess insight. By using the workability question, a researcher could assess the participant's level of insight on how controllable various experiences are or how they interpreted that particular control value. For example, a client who endorses *being happy* (one of the *control* items from the ACT-VCS) as a very important value may have a behavioral interpretation of being happy (e.g., "acting in a way consistent with my own values makes me feel happy") or an emotional interpretation (e.g., "acting in ways that make me feel happy are consistent with my values"). The former could be consistent with

psychological flexibility while the latter may be more indicative of control agenda endorsement. In summary, the card sort appears qualitatively to be useful in a clinical context, but the degree to which it may serve as a quantitative metric of behavior has only barely been addressed by the current study.

CHAPTER 5

SUMMARY AND CONCLUSIONS

The primary objective of this study was to examine the utility of using variables obtained from one's performance on the ACT-VCS (i.e., valuing propensity, values diversity, and control agenda endorsement) to predict self-reported levels of clinical symptoms (i.e., depression, anxiety, and stress) as well as self-reported psychological flexibility and inflexibility. One of the three hypotheses from the present study was partially supported by the findings – higher valuing propensity and lower control agenda endorsement appear to be related to one's self-reported levels of psychological flexibility. In general, valuing propensity appears to be the strongest of the three predictors, followed by control agenda endorsement. Values diversity was not predictive of any of the dependent variables. Additionally, the present study suggests that prior experience with psychotherapy or counseling may moderate these relationships, especially between control agenda endorsement and the clinical variables of interest.

The ACT-VCS is a values clarification exercise that may improve upon similar values interventions by using more behaviorally based language (e.g., “being supportive and helpful to children”) as opposed to more general domains (e.g., *parenting*). The ACT-VCS also provides additional information about valuing, in comparison to other values-oriented card sorts, by incorporating a considerable number of control-oriented values that people may select. From an ACT perspective, such control-oriented values could contribute to continued psychological, behavioral, emotional, or physical problems for the individual. The present study provides a preliminary example of how one can derive various performance variables from one's engagement in a values card sort and use them to predict variables of interest. The present study also demonstrates that it may be helpful for a clinician to look beyond the end results of the

ACT-VCS (or other interventions), and also note the process by which a client completes the activity. For example, the valuing propensity variable is one which would not be apparent in the end result of the intervention. Future research could improve on the present study in several ways including: investigating how a computerized administration of the ACT-VCS compares to a live administration, exploring the moderating effect of psychotherapy on the relationship between control agenda endorsement and other clinical variables, establishing empirical support for the ACT-VCS as a values clarification intervention in a clinical context, examining additional variables derived from one's performance on the ACT-VCS in predicting other variables of interest, or conducting qualitative research focused on treatment outcomes resulting from the ACT-VCS.

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APPENDICES

APPENDIX A

Informed Consent

This study is being conducted by Ryan Kimball, a graduate student in the Psychology Department at Southern Illinois University-Carbondale. To participate in this study, you must meet all the following requirements:

- You are at least 18 years old
- English is your first language
- Your country of origin is the United States of America

The present study involves research on the relationship between an individual's reported values and their self-reported levels of stress, anxiety, depression, quality of life, and psychological inflexibility. Information will be gathered from participants via Qualtrics (an online-based survey administrator). Participants will engage in a personal values identification activity as well as answer questions regarding their symptoms, experiences, and functioning.

Potential risks to participants are minimal and unlikely. These potential risks include psychological distress which may result from reflection on recent symptoms, functioning, or experiences. Participants may also experience direct benefits from participation in the study such as a greater understanding of their personal values.

This survey should take approximately 45 minutes to complete. If you choose to participate in this study, you will receive compensation of \$2 (USD). Your participation is voluntary, and you are free to withdraw from the study at any time (without compensation). Payment may also be denied for the following reasons:

- Failure to complete the full survey
- Inattentive responding
- Failing to meet the requirements listed above

Your responses will be associated with a randomly assigned number which will be entered on the M-Turk page to receive payment. Thus, your data will have no identifying information associated with it. However, the M-Turk account will have a record of your worker ID linked to your randomly assigned number to facilitate payment and verify study completion. These are separate, password-protected accounts which will be accessible only to the principal investigator of this study (Ryan Kimball). All reasonable steps will be made to protect your identity. Upon completion of data collection, the M-Turk data linking your ID number to your participant number will be deleted.

For questions and concerns pertaining to the present study, participants may contact the following individuals:

Ryan Kimball, B.A.

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(618) 453-8331

If you do not wish to continue, enter the word "no" below. If you do wish to proceed, please enter the word "yes" (MUST be all lowercase, exactly as shown) to indicate that you have read and agreed to these conditions: ____

This project has been reviewed and approved by the SIUC Human Subjects Committee. Questions concerning your rights as a participant in this research may be addressed to the Committee Chairperson, Office of Sponsored Projects Administration, Southern Illinois University, Carbondale, IL 62901-4709. Phone (618) 453-4533. E-mail siuhsc@siu.edu

APPENDIX B
Demographics Questionnaire

Demographic Information

Age (in years): _____

Country of Origin (the country you regard as your home):

[open entry]

Is English your first language?:

Yes

No

Education (select your highest Education attained):

No schooling completed

Nursery school to 8th grade

Some high school, no diploma

High school graduate, diploma or the equivalent (for example: GED)

Some college credit, no degree

Trade/technical/vocational training

Associate degree

Bachelor's degree

Master's degree

Professional degree

Doctorate degree

Other: _____

Relationship Status

Civil union, domestic partnership, or equivalent

Divorced

Married

Separated

Serious dating or committed relationship

Single

Widowed

Political Affiliation (select the party that you most identify with):

Democrat

Independent
Moderate/Centrist
Republican
Other (please specify): _____

Race/Ethnicity (select as many as are appropriate for you):

American Indian or Alaska Native
Asian
Black or African-American
Hispanic or Latino
Native Hawaiian or Other Pacific Islander
White or Caucasian
Other _____

Religion (select the category that you most identify with):

Agnostic (undecided as to the existence of God or an afterlife)
Atheist (do not believe in the existence of God or an afterlife)
Buddhist
Christian (any denomination of Catholics, Protestants, etc.)
Hindu
Jewish
Muslim
Other (please specify): _____

To what extent does your religious or spiritual preference play an important role in your life?

Very important
Important
Neutral
Unimportant
Very unimportant

Gender (Please select the gender you most identify with):

Female
Male
Transgender
Other (please specify): _____

Sexual Identity:

Bisexual (attracted to both sexes)
Heterosexual (attracted to the opposite sex)
Homosexual (attracted to the same sex)
Questioning

Other (please specify): _____

Current Employment Status

Employed for wages (Full-time)
Employed for wages (Part-time)
Homemaker
Military
Out of work and looking for work
Out of work but not currently looking for work
Retired
Self-employed
Student
Unable to work

Socioeconomic Status (if someone other than you is providing more than 50% of your income, please report his or her annual income instead):

\$25,000 or less
\$25,001-\$50,000
\$50,001-\$75,000
\$75,001 or more

Mental Health History:

Have you, at any time, received psychotherapy or counseling?

Yes

No

If so, what kind of psychological services have you received?

Group Therapy

Individual Therapy

Couples/Family Therapy

Medication

Other _____

If so, what were/are your problems or concerns related to, briefly (e.g., anxiety, depression, relationships, etc.)? _____

APPENDIX C

ACT Values Card Sort

[Although the values are typically printed on cards, for the purpose of the study the values were listed one after the other and rated as "not important", "somewhat important", or "very important to me" similar to a self-report questionnaire. Depending on the progression of the card sort, the participant also saw one of the responses listed below the following list of values:]

1. loving my family
2. developing bonds with members of my family
3. being there for my family
4. caring about my mom and/or dad
5. caring about my brother(s) and/or sister(s)
6. caring about my grandmother(s) and/or grandfather(s)
7. loving someone deeply
8. devoting myself to a long-term relationship
9. being open and real with a romantic partner
10. loving my partner
11. respecting my husband/wife or boyfriend/girlfriend
12. being the best romantic partner I can be
13. loving my children
14. being supportive and helpful to children
15. being the best parent I can be
16. providing for my kids
17. helping my children grow into healthy adults
18. protecting and nurturing children
19. being a good friend
20. being there for a friend (or friends)
21. caring about my friends
22. being a best friend to someone
23. being reliable and trustworthy for my friends
24. cultivating good friendships
25. pursuing a meaningful career
26. handling my chores or responsibilities well
27. going to work
28. being a reliable and competent worker
29. being good at my job
30. providing income for myself or my loved ones
31. going to school
32. learning a trade or skill
33. pursuing an education
34. performing as well as I can in my classes or training program
35. expanding my skills and experience
36. becoming more knowledgeable
37. maximizing the quality of my free time
38. developing a hobby or specialization
39. engaging in recreational activities
40. devoting my time and energy to leisure activities
41. protecting my free time
42. doing fun or interesting things in my free time
43. being faithful to my religious or spiritual beliefs
44. developing a deeper relationship with God
45. becoming more spiritual
46. living a moral life (as I see it)
47. participating in religious or spiritual activities
48. developing my personal view of reality and existence
49. promoting social justice
50. contributing something of value to society
51. serving others in my community or country
52. supporting a cause that I consider important
53. being part of a team or organization
54. being kind and considerate to others
55. improving or maintaining my health
56. being physically active
57. engaging in a healthy lifestyle
58. eating a healthy diet
59. protecting my time and ability to get adequate sleep
60. nurturing my own health
61. protecting the environment
62. preserving the planet and other forms of life
63. conserving natural resources of the Earth
64. being environmentally conscious
65. caring about animals

- | | |
|---|--|
| 66. loving my pet(s) | 90. avoiding embarrassment |
| 67. appreciating art, literature, music, etc. | 91. being loved by someone |
| 68. designing and/or building projects of interest to me | 92. feeling calm |
| 69. producing works that express my own passions and interests | 93. having the right thoughts or beliefs |
| 70. writing, drawing, or playing music | 94. being treated with respect |
| 71. creating something beautiful, elegant, or interesting | 95. preventing others from knowing the truth about me |
| 72. enjoying forms of entertainment (tv, movies, plays, concerts, etc.) | 96. being confident |
| 73. developing wisdom | 97. having high self-esteem |
| 74. learning to be respectful and caring to myself | 98. looking good in front of others |
| 75. becoming the person I am meant to be | 99. being right in my views and opinions |
| 76. experiencing freedom in choosing the direction of my life | 100. figuring out the right way to think about myself or my life |
| 77. being a role model to others | 101. ignoring unpleasant thoughts |
| 78. living with courage, honor, and dignity | 102. feeling important |
| 79. controlling my emotions | 103. knowing for sure what I need to do in the future |
| 80. minimizing physical pain or discomfort | 104. fixing my mind |
| 81. avoiding uncomfortable situations | 105. getting rid of my anxiety or depression |
| 82. eliminating unpleasant feelings | 106. satisfying my urges, desires, or cravings |
| 83. distracting myself from painful memories | 107. being popular, admired, or envied |
| 84. avoiding being criticized | 108. changing my problematic thoughts |
| 85. making people like me | 109. understanding what's wrong with me |
| 86. being in charge of other people | 110. giving negative people in my life what they deserve |
| 87. being happy | 111. expressing my pent-up emotions |
| 88. hiding my true feelings | 112. figuring out the cause of my problems |
| 89. being physically or sexually attractive | 113. venting about my problems |
| | 114. being clear about who is right and who is wrong |

First Instruction: The following is a collection of some common values. Indicate whether each one is very, somewhat, or not important to you in relation to pursuing a meaningful life. Answer according to your deepest desires, as if anything were possible. Imagine that no one will ever see your selections; answer based on your own authentic desires and preferences. You should also try to answer quickly, not spending too much time on any one answer.

Second Instruction (as needed): Below are those values which you indicated are very important to you. However, a smaller selection is required. To further refine the selection of very important values, please rate each value again according to its importance to you personally, making an effort to rate fewer values as very important.

Third Instruction (as needed): Below are those values which you indicated are most important to you. Review your options and select only those which you can not imagine going without.

Fourth Instruction: Now rank your values from most to least important:

Fifth Instruction: Now select only those values which are controllable. In other words, select those which you are free to engage in at will.

APPENDIX D
Depression Anxiety Stress Scales

DASS Name: Date:		
Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you <i>over the past week</i> . There are no right or wrong answers. Do not spend too much time on any statement.		
<i>The rating scale is as follows:</i> 0 Did not apply to me at all 1 Applied to me to some degree, or some of the time 2 Applied to me to a considerable degree, or a good part of time 3 Applied to me very much, or most of the time		
1	I found myself getting upset by quite trivial things	0 1 2 3
2	I was aware of dryness of my mouth	0 1 2 3
3	I couldn't seem to experience any positive feeling at all	0 1 2 3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0 1 2 3
5	I just couldn't seem to get going	0 1 2 3
6	I tended to over-react to situations	0 1 2 3
7	I had a feeling of shakiness (eg, legs going to give way)	0 1 2 3
8	I found it difficult to relax	0 1 2 3
9	I found myself in situations that made me so anxious I was most relieved when they ended	0 1 2 3
10	I felt that I had nothing to look forward to	0 1 2 3
11	I found myself getting upset rather easily	0 1 2 3
12	I felt that I was using a lot of nervous energy	0 1 2 3
13	I felt sad and depressed	0 1 2 3
14	I found myself getting impatient when I was delayed in any way (eg, elevators, traffic lights, being kept waiting)	0 1 2 3
15	I had a feeling of faintness	0 1 2 3
16	I felt that I had lost interest in just about everything	0 1 2 3
17	I felt I wasn't worth much as a person	0 1 2 3
18	I felt that I was rather touchy	0 1 2 3
19	I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion	0 1 2 3
20	I felt scared without any good reason	0 1 2 3
21	I felt that life wasn't worthwhile	0 1 2 3

Please turn the page

<i>Reminder of rating scale:</i>		
0 Did not apply to me at all		
1 Applied to me to some degree, or some of the time		
2 Applied to me to a considerable degree, or a good part of time		
3 Applied to me very much, or most of the time		
22	I found it hard to wind down	0 1 2 3
23	I had difficulty in swallowing	0 1 2 3
24	I couldn't seem to get any enjoyment out of the things I did	0 1 2 3
25	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0 1 2 3
26	I felt down-hearted and blue	0 1 2 3
27	I found that I was very irritable	0 1 2 3
28	I felt I was close to panic	0 1 2 3
29	I found it hard to calm down after something upset me	0 1 2 3
30	I feared that I would be "thrown" by some trivial but unfamiliar task	0 1 2 3
31	I was unable to become enthusiastic about anything	0 1 2 3
32	I found it difficult to tolerate interruptions to what I was doing	0 1 2 3
33	I was in a state of nervous tension	0 1 2 3
34	I felt I was pretty worthless	0 1 2 3
35	I was intolerant of anything that kept me from getting on with what I was doing	0 1 2 3
36	I felt terrified	0 1 2 3
37	I could see nothing in the future to be hopeful about	0 1 2 3
38	I felt that life was meaningless	0 1 2 3
39	I found myself getting agitated	0 1 2 3
40	I was worried about situations in which I might panic and make a fool of myself	0 1 2 3
41	I experienced trembling (eg, in the hands)	0 1 2 3
42	I found it difficult to work up the initiative to do things	0 1 2 3

APPENDIX E

Multidimensional Psychological Flexibility Inventory

FLEXIBILITY SUBSCALES						
ACCEPTANCE						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasi- onally TRUE	Often TRUE	Very Often TRUE	Always TRUE
I was receptive to observing unpleasant thoughts and feelings without interfering with them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tried to make peace with my negative thoughts and feelings rather than resisting them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I made room to fully experience negative thoughts and emotions, breathing them in rather than pushing them away	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I had an upsetting thought or emotion, I tried to give it space rather than ignoring it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I opened myself to all of my feelings, the good and the bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PRESENT MOMENT AWARENESS						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasi- onally TRUE	Often TRUE	Very Often TRUE	Always TRUE
I was attentive and aware of my emotions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was in tune with my thoughts and feelings from moment to moment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I paid close attention to what I was thinking and feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was in touch with the ebb and flow of my thoughts and feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I strived to remain mindful and aware of my own thoughts and emotions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SELF AS CONTEXT						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasi- onally TRUE	Often TRUE	Very Often TRUE	Always TRUE
Even when I felt hurt or upset, I tried to maintain a broader perspective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I carried myself through tough moments by seeing my life from a larger viewpoint	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I tried to keep perspective even when life knocked me down	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I was scared or afraid, I still tried to see the larger picture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When something painful happened, I tried to take a balanced view of the situation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DEFUSION						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasionally TRUE	Often TRUE	Very Often TRUE	Always TRUE
I was able to let negative feelings come and go without getting caught up in them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I was upset, I was able to let those negative feelings pass through me without clinging to them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I was scared or afraid, I was able to gently experience those feelings, allowing them to pass	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was able to step back and notice negative thoughts and feelings without reacting to them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In tough situations, I was able to notice my thoughts and feelings without getting overwhelmed by them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VALUES						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasionally TRUE	Often TRUE	Very Often TRUE	Always TRUE
I was very in-touch with what is important to me and my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I stuck to my deeper priorities in life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tried to connect with what is truly important to me on a daily basis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even when it meant making tough choices, I still tried to prioritize the things that were important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My deeper values consistently gave direction to my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
COMMITTED ACTION						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasionally TRUE	Often TRUE	Very Often TRUE	Always TRUE

Even when I stumbled in my efforts, I didn't quit working toward what is important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even when times got tough, I was still able to take steps toward what I value in life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even when life got stressful and hectic, I still worked toward things that were important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I didn't let set-backs slow me down in taking action toward what I really want in life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I didn't let my own fears and doubts get in the way of taking action toward my goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
INFLEXIBILITY SUBSCALES						
EXPERIENTIAL AVOIDANCE						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasi- onally TRUE	Often TRUE	Very Often TRUE	Always TRUE
When I had a bad memory, I tried to distract myself to make it go away	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tried to distract myself when I felt unpleasant emotions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When unpleasant memories came to me, I tried to put them out of my mind	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When something upsetting came up, I tried very hard to stop thinking about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If there was something I didn't want to think about, I would try many things to get it out of my mind	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LACK OF CONTACT WITH THE PRESENT MOMENT						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasi- onally TRUE	Often TRUE	Very Often TRUE	Always TRUE
I did most things on "automatic" with little awareness of what I was doing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I did most things mindlessly without paying much attention.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I went through most days on auto-pilot without paying much attention to what I was thinking or feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I floated through most days without paying much attention.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Most of the time I was just going through the motions without paying much attention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SELF AS CONTENT						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasi- onally TRUE	Often TRUE	Very Often TRUE	Always TRUE
I thought some of my emotions were bad or inappropriate and I shouldn't feel them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I criticized myself for having irrational or inappropriate emotions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believed some of my thoughts are abnormal or bad and I shouldn't think that way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I told myself that I shouldn't be feeling the way I'm feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I told myself I shouldn't be thinking the way I was thinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FUSION						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasi- onally TRUE	Often TRUE	Very Often TRUE	Always TRUE
Negative thoughts and feelings tended to stick with me for a long time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Distressing thoughts tended to spin around in my mind like a broken record.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It was very easy to get trapped into unwanted thoughts and feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I had negative thoughts or feelings it was very hard to see past them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When something bad happened it was hard for me to stop thinking about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LACK OF CONTACT WITH VALUES						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasi- onally TRUE	Often TRUE	Very Often TRUE	Always TRUE

My priorities and values often fell by the wayside in my day to day life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When life got hectic, I often lost touch with the things I value	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The things that I value the most often fell off my priority list completely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I didn't usually have time to focus on the things that are really important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When times got tough, it was easy to forget about what I truly value	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
INACTION						
IN THE LAST TWO WEEKS...	Never TRUE	Rarely TRUE	Occasionally TRUE	Often TRUE	Very Often TRUE	Always TRUE
Negative feelings often trapped me in inaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Negative feelings easily stalled out my plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Getting upset left me stuck and inactive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Negative experiences derailed me from what's really important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unpleasant thoughts and feelings easily overwhelmed my efforts to deepen my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX F
Verification Failed – End of Survey Message

Thank you for taking our survey. As stated in the Consent Form, there are certain requirements that must be met in order to participate and receive compensation.

You are seeing this message because you are not eligible to complete the study and receive compensation. This may be due to any of the following reasons:

- You do not agree to participate.
- You are under 18 years old.
- English is not your first language.
- You are not from the United States
- You failed to answer a question correctly that checked to see if you were reading carefully

This follows Amazon Mechanical Turk Participation Agreement 3.b.vi, which states that “Requesters may reject Tasks you perform for good cause”.

You may close this window or use your explorer bar to navigate back to the Amazon Mechanical Turk site.

The Consent Form from the beginning of the study is below if you would like to review it:

[See Appendix A]

APPENDIX G
M-Turk Code – End of Survey Message

Thank you for participating.

Your validation code is:

[insert randomly assigned number between 1 and 9,999,999]

To receive payment for participating, click “Accept HIT” in the Mechanical Turk window, enter this validation code, then click “Submit”.

VITA

Graduate School
Southern Illinois University

Ryan S. Kimball

ryanskimball28@gmail.com

Utah State University
Bachelor of Arts, Psychology, May 2015

Special Honors and Awards:

Magna Cum Laude distinction, College of Education and Human Services – Utah State University, 2015

Presidential Scholarship, Utah State University, 2009-2015

Outstanding Applied Psychological Service, Department of Psychology – Utah State University, 2014

Dean's List, College of Education and Human Services – Utah State University, 2010, 2012, 2013, 2014

Thesis Title:

Prediction of Clinical Symptoms and Psychological Flexibility Using a Novel Values Card Sort Activity

Major Professor: Chad E. Drake, Ph.D.